

MP F50

MP F30

SERVICE MANUAL

Canon

MultiPASS™ F50 ***MultiPASS™ F30***

SERVICE MANUAL

REVISION 0

MultiPASS F50	H12-2192	120V	USA
MultiPASS F50	H12-2193	120V	CND/LTN
MultiPASS F30	H12-2202	120V	USA
MultiPASS F30	H12-2203	120V	CND/LTN

Canon

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HY8-19AV-000

Application

This manual has been issued by Canon Inc. for qualified persons to learn technical theory, installation, maintenance, and repair of products. This manual covers all localities where the products are sold. For this reason, there may be information in this manual that does not apply to your locality.

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DTP System

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I. MEANING OF MARKS

The marks used in this manual have the following meanings.

Mark	Meaning
	States a precaution to be taken to prevent danger to personnel, damage to the product, or damage to electronic components by discharge of static electricity. for example.
	States a precaution to be taken to prevent damage to electronic components by electrostatic discharge.
	If the following mark is used, following the directions given.
	Informs you of fire-related cautions.
	Informs you that the plug must be removed from the power outlet before starting an operation.
 NOTE	Gives useful information to understand descriptions.
 REFERENCE	Indicates sections to be read to obtain more detailed information.

II. ABOUT THIS MANUAL

This manual is divided into five parts, and contains information required for servicing the product.

Each of the above parts is further divided into the following four chapters:

Chapter 1: General Description

This part explains product specifications and the how to service the unit safely. It is very important, so please read it.

Chapter 2: Technical Reference

This part explains the technical theory the product.

Chapter 3: Assembly and Disassembly

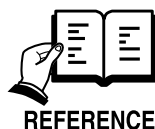
This part explains the assembly and disassembly of the product.

Chapter 4: Maintenance and Service

This part explains how to maintain the products for adjustment and troubleshooting and service operations and service switches.

Chapter 5: Appendix

This part explains the informations of the optional products and user data flow.



-
- For more details of user operations and user reports, see the separate volume of *USER'S GUIDE*.
 - Detailed description of each SSSW/parameter is not given in this manual except the new SSSWs/parameters added to this model.
See *G3 Facsimile Service Data Handbook (supplied separately)* for details them.
 - See the *G3 Facsimile Error Code List (Rev.1, supplied separately)* for details of the error codes not shown in this manual.
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III. REVISION HISTORY

<i>REVISION</i>	<i>CONTENT</i>
0	Original

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Chapter 1

General Description

1. FEATURES

1.1 Overview

This product is a G3 transreceiving facsimile based on the ITU-T recommendations. It can be used in telephone networks.

Picture Quality Color Printer

High quality printing can be accomplished with the Canon Bubble Jet (BJ) method using the maximum 2400dpi × 1200dpi resolution. Various kinds of media can be printed with the high speed of a maximum 17 pages per minute. The printing paper tray can hold up to 100 sheets of plain paper, 30 sheets of OHP film, or 10 back print films or envelopes.

Plain paper fax which can transmit/receive in color

Conforming to ITU-T recommendations, this fax is able to transmit/receive in color. Due to containing extremely high-speed 33.6kbps modems, transmission time can be shortened. Pictures and photographs can both be send and received clearly by UHQ (Ultra High quality), Canon's vivid image processing technology. Up to 30 letter- or A4- size sheets, or up to 10 legal-size sheets, can be set in the ADF *1. 12 one-touch dial entries and 100 speed dial entries can be registered, and group dial and broadcasting transmission can also be done. When paper and ink run out, the data is saved to memory, so there is no worry. When a external-phone is attached, fax communication and normal telephone reception are possible due to DRPD service and FAX/TEL switching.

Out-of-Ink Function

This machine has a function which detects when ink has run out. It also detects when the cartridges of machines equipped with color communications are out of ink. The presence/absence of ink in the ink chamber is detected by reflecting ink sensor.

Copy Function

This machine can be used as a 1200dpi × 1200 dpi high resolution full color copier. With a monochrome document (including half-tone), up to 99 pages can be copied at one time at the speed of a maximum of 17 pages/minute.

Full Color & 256 Gradation Grayscale Scanner

Using graphics or OCR software which conforms to the TWAIN standard, full color and 256-gradation grayscale images with a quality of 40 ~ 9600 dpi can be read into a computer.

PC Fax *1

By connecting this machine to a computer, a fax can be transmitted from the included MultiPASS Suite or from a Windows application, and a received image can be saved to the computer as-is without printing it out.

*1 MultiPASS F50 only

2. SPECIFICATIONS

2.1 General Specification

Type	Desktop
Body colour	Cool White
Power source	98 ~ 132V AC, 48 ~ 62 Hz
Power consumption	Standby 5.8 W Max. 39.6 W (when 100% black copy)
Usage environment.	50.0° F ~ 90.5° F (10° C ~ 32.5° C), 20% ~ 80% RH, 570 ~ 760 mmHg (760 ~ 1013 hPa) Horizontal ±3° or less
Operating noise	Measured in accordance with ISO standards Operating :50 dB(A) or less
Dimensions (W × D × H)	17.32" × 20.59" × 8.89" (440 mm × 523 × 228 mm) MultiPASS F30 17.32" × 20.59" × 11.85" (440 mm × 523 × 301 mm) MultiPASS F50 (Not including trays)
Weight	22.05 lbs (10.0 kg) MultiPASS F30 27.34 lbs (12.4 kg) MultiPASS F50 (Not including trays)

2.2 Communication Specification (MultiPASS F50 only)

Applicable lines	PSTN (Public Switched Telephone Network)
Applicable Services	DRPD (Distinctive Ring Pattern Detection)
Handset	None
Transmission method	Half-duplex
Transmission control protocol	ITU-T T30 binary protocol/ECM protocol/ ITU-T V.8 protocol/V.34 protocol/ECM protocol
Modulation method	
G3 image signals	ITU-T V.27ter (2.4k, 4.8k bps) ITU-T V.29 (7.2k, 9.6k bps) ITU-T V.17 (TC7.2k, TC9.6k, 12k, 14.4k bps) ITU-T V.34 (2.4k, 4.8k, 7.2k, 9.6k, 12k, 14.4k, 16.8k, 19.2k, 21.6k, 24k, 26.4k, 28.8k, 31.2k, 33.6k bps)
G3 procedure signals	ITU-T V.21 (No.2) (300bps) ITU-T V.8 300bps ITU-T V.34 600 bps, 1200 bps (With automatic fallback function)
Coding	Black/white ITU-T T.4 Coding method (MH, MR) ITU-T T.6 Coding method (MMR) ITU-T T.82/T.85 Coding method (JBIG) Color ITU-T T.81 Coding method (JPEG)
Error correction	ITU-T T30 (ECM)

Time required for transmission protocol

Protocol Mode	Pre-message Protocol *1	Post-message Protocol *2 (between pages)	Post-message *3 (after pages)
G3 standard	approx.18 sec.	approx.4 sec.	approx.4 sec.
V.8/V.34	approx.8 sec.	approx.2 sec.	approx.2 sec.

*1 Time from when other facsimile is connected to the line until image transmission begins.

*2 Post-message (between pages): Time from after one document has been sent until transmission of the next document starts if several pages are transmitted.

*3 Post-message (after last pages): Time from after image transmission is completed until line is switched from facsimile to telephone.

Minimum transmission time	10 msec (G3), 0 msec (G3, ECM)
Transmission output level	From 0 to -15 dBm
Receive input level	From -3 to -43 dBm
Modem IC	FM336

2.3 Color Communication Specification (MultiPASS F50 only)

ITU-T recommendation	ITU-T T.30 ANNEX E (JPEG Color Fax) T.4 ANNEX E (JPEG Header) T.42 (Color space for Color Fax) T.81 (JPEG)
Scanning Document size	A4
Printing paper size	A4
Resolution	200×200 dpi
Picture element	8 bit
Coding	JPEG
Color space	CIELAB
Illuminant Data	CIE Standard Illuminant D50
Sub sample	4:1:1 (=Lab)

2.4 Scanner Specification

Type	Book Sheet (MultiPASS F50 only)	
ADF capacity	Max. 30 sheets (A4/Letter) Max. 10 sheets (Legal)	
Effective scanning width	Letter/Legal A4	8.42" (214 mm) 8.19" (208 mm)
Scanning method	Contact Image sensor scanning method	
Scanning resolution	600 × 1200 dpi	
Scanning speed		
Mode	Line density	Scanning speed
Text	30~150 dpi	5 second/page
	151~300 dpi	5 second/page
	301~600 dpi	5 second/page
Gray scale	30~150 dpi	5 second/page
	151~300 dpi	5 second/page
	301~600 dpi	5 second/page
Full color	30~150 dpi	15 second/page
	151~300 dpi	15 second/page
	301~600 dpi	15 second/page
Scanner gradations	Grayscale; 8 bit, 256 gradations Color; R,G,B (8 bits each) full color capability	
TWAIN	Yes	
Scanning density adjustment	3 density level	
Image modes	Halftone (PHOTO mode)	
Halftone (fax and copy)	64-gradation error diffusion system (UHQ)	
Prescan	Yes	

Scanning range

Sheet dimensions (W × L)

MultiPASS F50

ADF Maximum 8.50" × 39.3" (216 mm × 1000 mm)

ADF Minimum 4.13" × 5.83" (105 mm × 148 mm)

Document glass 8.5" × 11.7" (216 mm × 297 mm)

MultiPASS F30

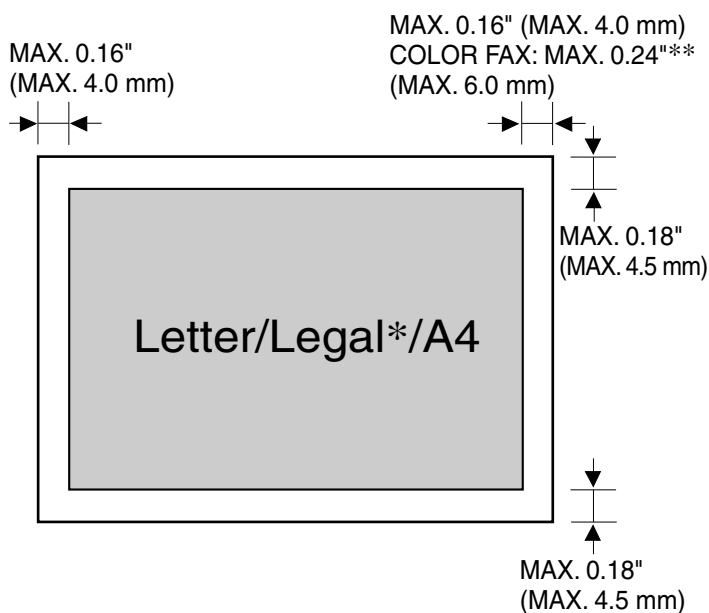
Document glass 8.5" × 14.0" (216 mm × 356 mm)

Thickness

ADF 0.002" ~ 0.005" (0.06mm ~ 0.13 mm)

50~90 g/m²

Document glass 0.79" (20 mm)



* When using legal-size documents with the MultiPASS F50, load them into the ADF.

**MultiPASS F50 only

Figure 1-1 Scanning Range



NOTE

Document scanning width "A4/LTR" is set in service data #1 SSSW SW06, bit4.

2.5 Printer Specification

Printing method	Bubble-jet ink on-demand
BJ Cartridge	
Structure	Detachable ink tanks for each color and BK/CI (C, M, Y) integrated head
Head	BK: 320 nozzles, 2-column vertical array CI: 256 nozzles/color, 2-column vertical array/color
Ink colors	Pigment BK, dyes C, M, Y
Ink tanks	BCI-3eBK, BCI-3eC, BCI-3eM, BCI-3eY
Weight	BK: 32 g CI (C, M, Y): 11 g
Ink Tank	
Products name	BCI-3BeK/BCI-3eC/BCI-3eM/BCI-3eY
Product code	F47- 3131 / F47- 3141/ F47- 3151/ F47- 3161
Weight	32g (BCI-3eBK)/11g (others)
Ink detection	Optical LOW-Ink sense
Printing speed	Black Approx. 17 pages/minute (in case of character print) Color Approx. 12 page/minute
Printing resolution	2400 dpi × 1200 dpi
Paper output tray stacking	Approx. 50 sheets (when using the recommended paper)
Paper tray	
Paper supply method	ASF (Auto Sheet Feeder)
Number of paper tray	1tray : Legal/Letter/A4 (Universal)
Paper capacity	Max. 0.40" (10 mm) thickness plain paper (Approx. 100 sheets)
Weight	64 ~ 105 g/m ²
Recommended paper	
Canon Copier LTR/LGL Premium Paper	
Weight	75 g/m ²
Paper size	Letter, Legal
Manufactured by	BOISE CASCADE
PLOVER BOND	
Weight	75 g/m ² , 90 g/m ²
Paper size	Letter
Manufactured by	FOX RIVER
XEROX 4024	
Weight	75 g/m ² , 90 g/m ²
Paper size	Letter, Legal
Manufactured by	XEROX

Printing range (Black & White FAX)

Paper dimensions (W × L)

Letter	8.50" × 10.98" (216 mm × 279 mm)
Legal	8.50" × 14.02" (216 mm × 356 mm)
A4	8.27" × 11.69" (210 mm × 297 mm)

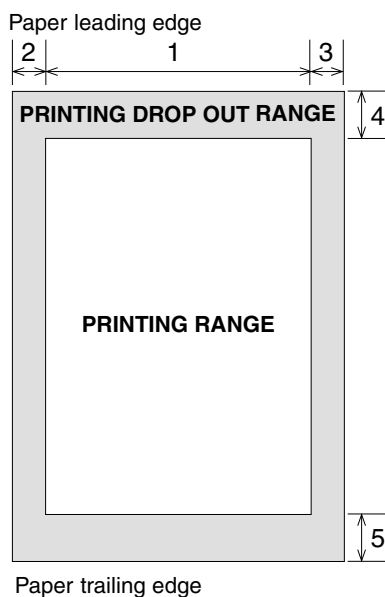


Figure 1-2 Printing Range

Item	A4	Letter	Legal
1 Effective printing width	8.00" (203.2 mm)	8.00" (203.2 mm)	8.00" (203.2 mm)
2 Left margin	0.13"±0.06" (3.4±1.5 mm)	0.25"±0.06" (6.4±1.5 mm)	0.25"±0.06" (6.4±1.5 mm)
3 Right margin	0.13"±0.06" (3.4±1.5 mm)	0.25"±0.06" (6.4±1.5 mm)	0.25"±0.06" (6.4±1.5 mm)
4 Top margin	0.12"±0.06" (3.0±1.5 mm)	0.12"±0.06" (3.0±1.5 mm)	0.12"±0.06" (3.0±1.5 mm)
5 Bottom margin	0.20"±0.12" (5.0±3.0 mm)	0.20"±0.12" (5.0±3.0 mm)	0.20"±0.12" (5.0±3.0 mm)

Units are inches with mm shown in parentheses.



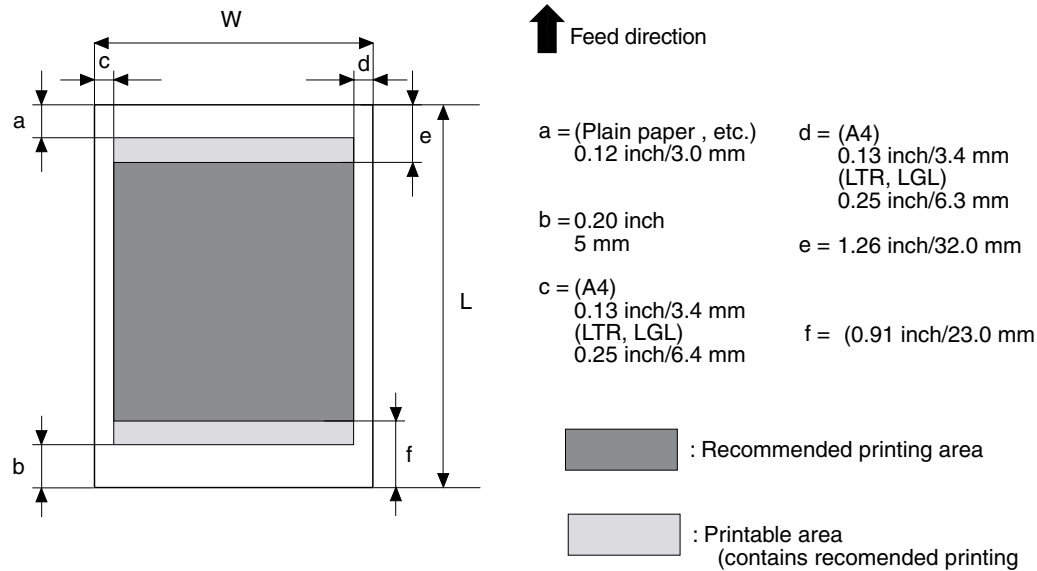
NOTE

- The shaded area is included in the left and right margin errors of the paper trailing edge.
- The printing range is set in user data **"PRINTER SETTINGS", "PAPER SIZE"**.

Printing range (Color FAX & Printer mode)

Plain paper and Special media (Color FAX & Printer mode)

W × L = Min. 7.17 × 10.12 inch(182 × 257 mm)
Max. 8.5 × 14.0 inch(216 × 356 mm)



Envelopes

W × L = (COM #10)
9.48 × 4.17 inch(241 × 106 mm)
(DL)
8.66 × 4.33 inch(220 × 110 mm)

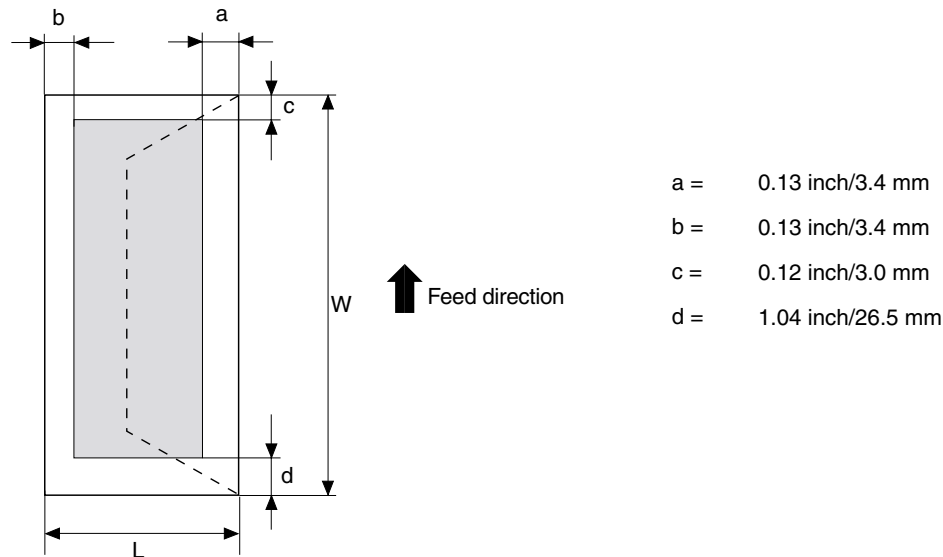
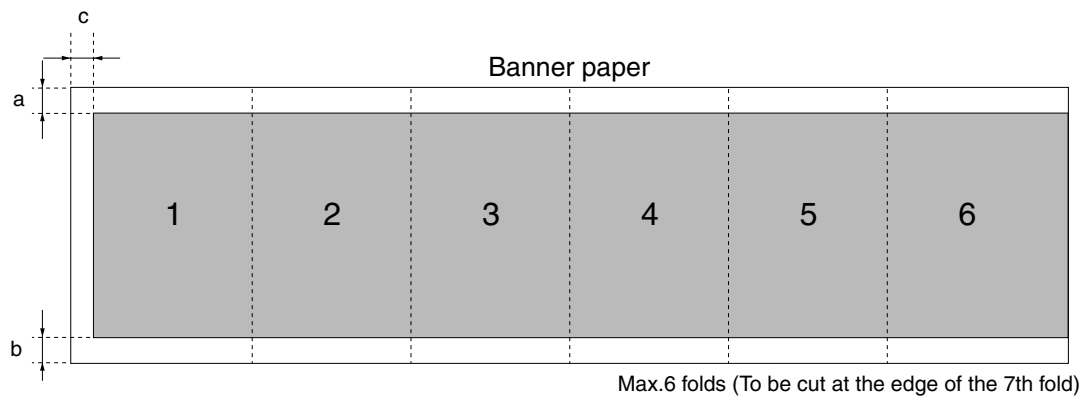


Figure 1-3 Printing Range (1)



a=0.25inch / 6.3mm
b=0.25inch / 6.4mm
c=1.10inch / 28mm

Figure 1-4 Printing Range (2)

2.6 Copy Specification

Color copy	Yes		
Multiple copy	99 copies		
Copy mode	Black & white	DRAFT, TEXT, PHOTO	
	Color	FAST, NORMAL, FINE	
Copy resolution	Scanning	Black & white	600 dpi × 600 dpi
		Color	1200 dpi × 1200 dpi
	Printing	Black & white	600 dpi × 600 dpi
		Color	1200 dpi × 1200 dpi
Copy magnification ratio	25~400%		
Fixed ratio	A4 → LTR, LGL → LTR, 4 × 6 inch → LTR		

2.7 Function

Dialling

Manual dialling	Numeric button
Auto dialing	Max. 120 digits
	One-touch:12, Coded speed:100, Numeric button:1
Group dial	Max.111 locations
Redial	Numeric button redial function (Max. 120 digits)

Transmission

Broadcast transmission	Max. 113 locations (One-touch:12, Coded speed:100, Numeric button:1)
Delayed transmission	Yes (PC Assisted) Max. 30 reservation
Confidential Tx/Rx	None
Relay broadcasting originating	None
Relay broadcasting	None

Reception

Dual Access	Yes
FAX/TEL switching	Yes
Method	CNG, detection
Message	None
Pseudo CI	None
Pseudo ring	Yes
Pseudo ringback tone	Yes
Reduction settings for reception	Yes
Automatic reduction of reception images	Yes (100% ~ 70%)
Built-in Answering machine	None
Answering machine connection	Yes (Telephone answering priority type)
Remote reception	Yes (Remote ID method)
Memory lock reception	None
Reception printing in reverse order	None

Polling

Polling transmission	None
Polling reception	None

Extended copy function

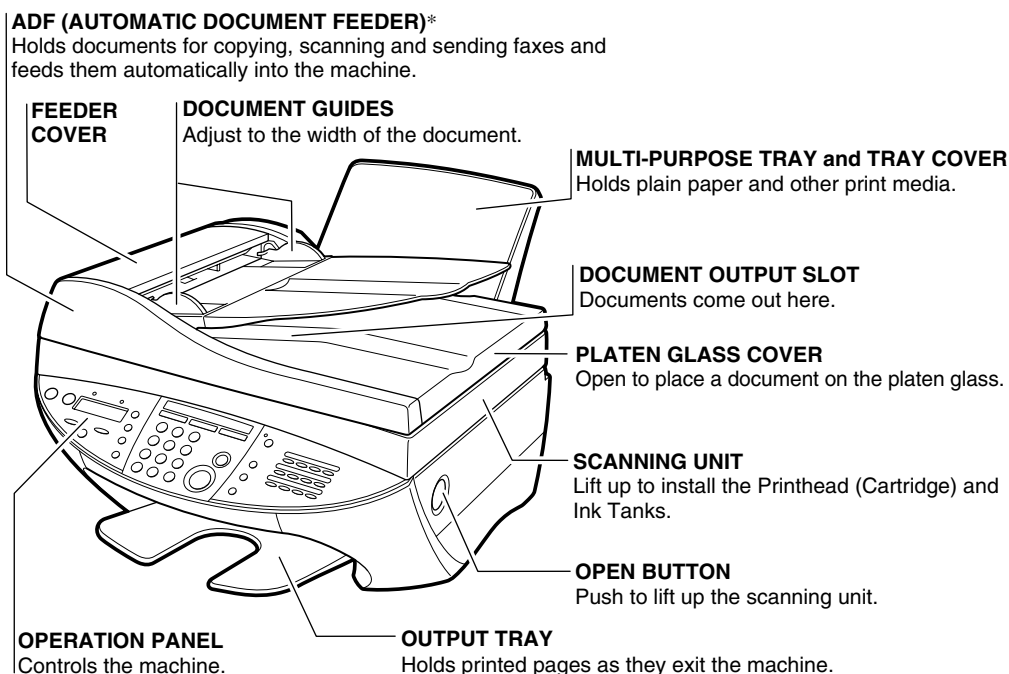
mirror	Yes
Image repeat	Yes
Entire document	Yes

Others	
Closed network	None
Direct mail prevention	None
Reception printing in reverse order	None
Memory box	None
Memory backup	
Backup contents	Dial registration data, User data, Service data, Time
Backup IC	256 kbit SRAM for control
Backup device	Lithium battery 3.0V DC/220 mAh
Battery life	Approx. 5 years
Image data backup	None
Image Memory	Approx. 4.3 MB
Activity management	Yes
a) User report	
Activity management report (Every 20 transactions : always transmission and reception together)	
Activity report (sending/receiving)	
One-touch speed dialling list	
Coded speed dialling list	
Group dialling list	
Memory clear list	
User's data list	
Document memory list	
Multi activity report	
b) Service report	
System data list	
System dump list	
Error list	
Transmitting terminal identification	Yes
Time	
Management data	Year/month/date/day/hour/minute (24 hour display)
Precision	±90 sec per month
Display	2 row × 20 digits
Completion stamp	None
Program button	None
Hook button	Yes
Telephone exchange function	None
Speaker phone	None
Demo print function	None
HELP function	None

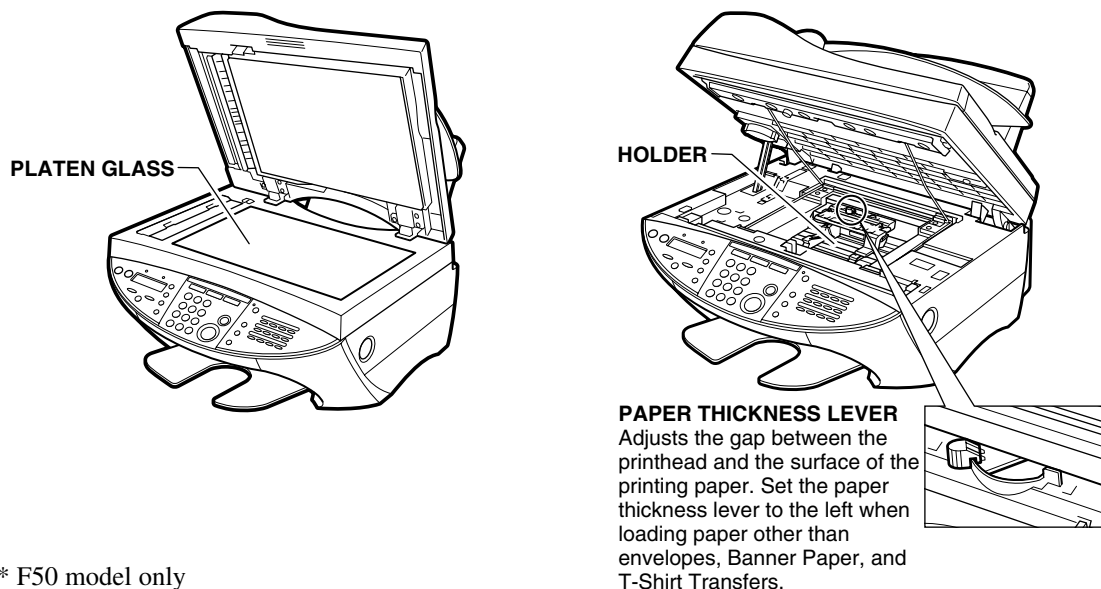
3. OVERVIEW

3.1 External View

Front View



Inside View

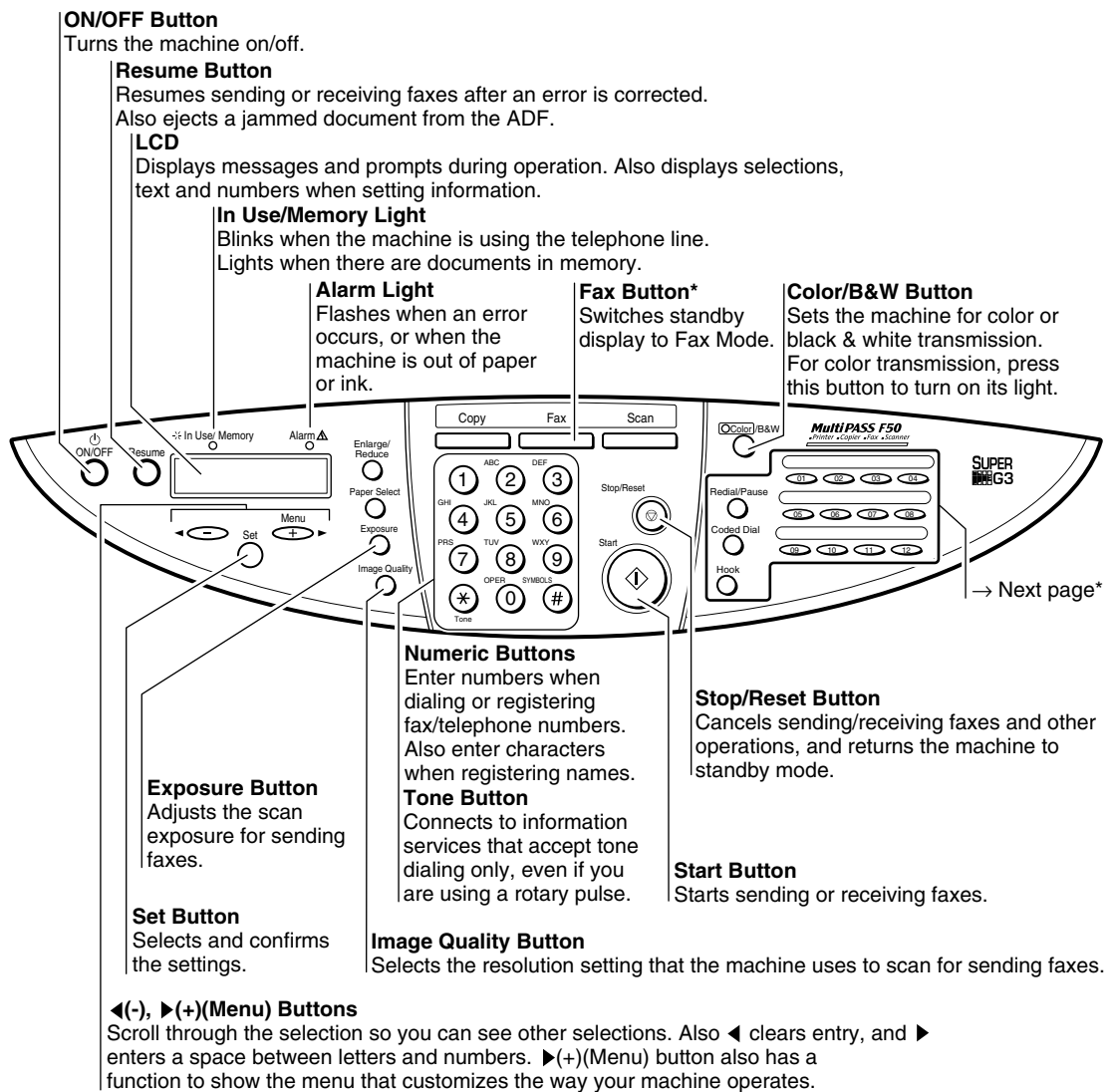


* F50 model only

Figure 1-5 External View

3.2 Operation Panel

Operation Panel



* MultiPASS F50 only

Figure 1-6 Operation Panel (1)

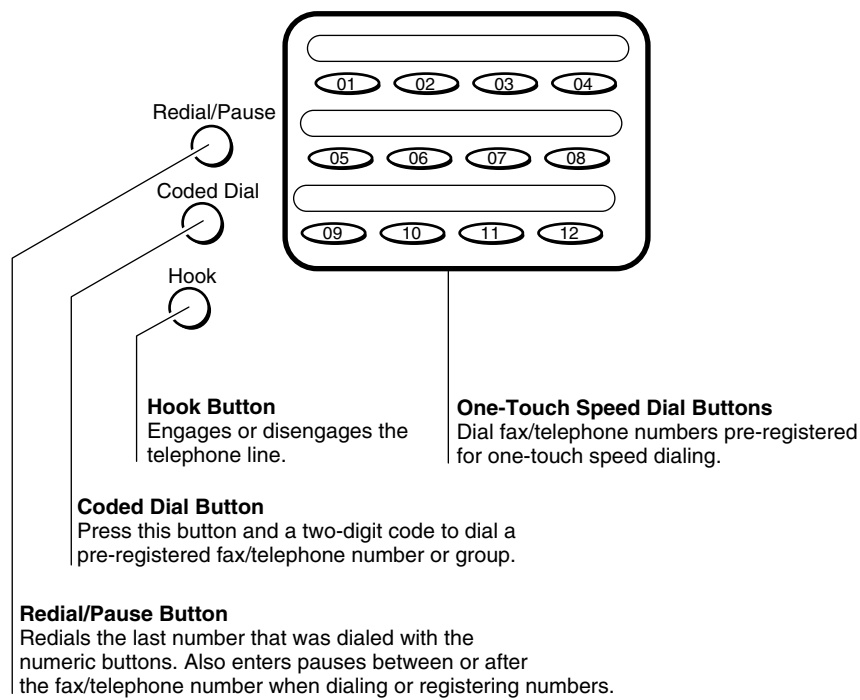


Figure 1-7 Operation Panel (2)

Guidelines for Entering Numbers, Letters, and Symbols

When you come to a step that requires you to enter a name or number, refer to the table below to determine which numeric button to press for the character you want:

Button	Letters (:A)	Numbers (:1)
①		1
<small>ABC</small> ②	ABCabc	2
<small>DEF</small> ③	DEFdef	3
<small>GHI</small> ④	GHIghi	4
<small>JKL</small> ⑤	JKLjkl	5
<small>MNO</small> ⑥	MNOmno	6
<small>PRS</small> ⑦	PQRSpqrs	7
<small>TUV</small> ⑧	TUVtuv	8
<small>WXY</small> ⑨	WXYZwxyz	9
<small>OPER</small> ⑩		0
<small>SYMBOLS</small> ⑪	-.*#!",,:^`_=/ '?\$@%&+()[]{}<>	
<small>* Tone</small>	Letter input (:A) ↔ Number input (:1)	



NOTE

- If you pause for more than 60 seconds between entering data, the machine will automatically return to standby mode.

Figure 1-8 Operation Panel (3)

3.3 Consumables

3.3.1 BJ cartridge and ink cartridge

Guidelines for Entering Numbers, Letters, and Symbols



- For optimum printing results and to avoid printing problems, Canon recommends that you only use the Canon Ink Tanks described in this guide.

NOTE

There are four Ink Tanks: Black, cyan, magenta, and yellow.

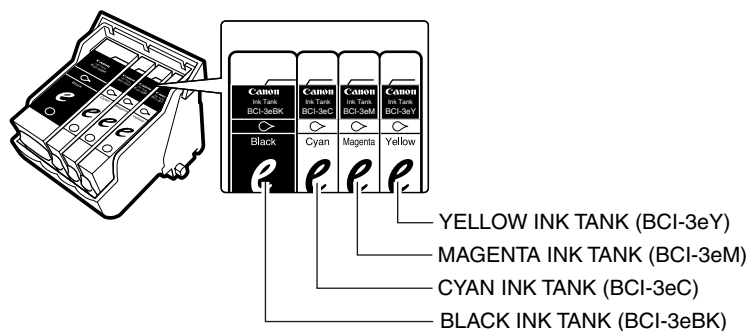


Figure 1-9 Consumables (1)

3.3.2 Print media

Description of print media

■ Plain Paper

The machine supports letter-, legal-, and A4-size paper in portrait orientation. You can use regular copier paper, cotton bond paper, or typical letterhead. Your machine does not require special ink jet paper. Always use paper without curls, folds, staples, or damaged edges. Look at the label on the package to see if the paper has a preferred side for printing.

■ Envelopes

The machine can print on U.S. Commercial No. 10 and European DL envelopes. You may be able to load other sizes, but Canon cannot guarantee consistent performance on these.

Do not use the following types of envelopes since they may cause problems:

- Envelopes with windows, holes, perforations, cutouts, and double flaps.
- Envelopes made with special coated paper or deeply embossed paper.
- Envelopes with peel-off sealing strips.
- Envelopes with letters enclosed.

■ Glossy Photo Paper GP-301

A high gloss, thick paper that produces the look and feel of a photograph.

■ Banner Paper BP-101

Specifically designed for printing one continuous sheet in a banner format. The connected sheets are divided by perforations and you can print from two to six sheets at a time.

■ High Resolution Paper HR-101/HR-101N

Designed to produce near-photographic quality print output with sharp and vivid graphics.

■ Bubble Jet Paper LC-301

Developed for high quality printing with minimal or no smearing when in contact with water or damp surfaces. This specially coated paper produces bright and vivid colors and stands up to normal office highlighters.

■ Transparencies CF-102

Produce excellent contrast, sharpness, and color, creating crisp and professional overhead presentations.

Do not use normal transparencies in the machine as they do not absorb ink and may cause ink to run.

■ High Gloss Photo Film HG-201

A bright white finish film that lends striking visual power to charts, graphs, and photographic images. It creates a sharper and more vivid color output than is possible with coated paper.

■ Glossy Photo Cards FM-101

Made from the same stock as Glossy Photo Paper, these cards allow you to print images over the entire area of the card. Print the image so that it extends beyond the perforations and then trim off the unwanted white margins.

■ **Photo Paper Pro PR-101/ PC-101S**

Photo Paper Pro PR-101 is thick paper with a treated surface that enhances gloss and provides superior color reproduction. It is ideal for printing high quality photographs.

Photo Paper Pro PC-101S is made of the same material as Photo Paper Pro PR-101, this photo-size paper is intended for printing images that cover the entire surface of the card, without a white border. To take full advantage of PC-101S, make the images slightly larger than the area indicated by the perforations. This paper is ideal for printing high quality photographs.

■ **T-Shirt Transfers TR-201**

This paper is used to produce iron-on transfers.

Chapter 2

Technical Reference

1. COMPONENT LAYOUT

1.1 Parts Layout

The parts layout of this machine consists of the scanning assembly, printing assembly and printer.

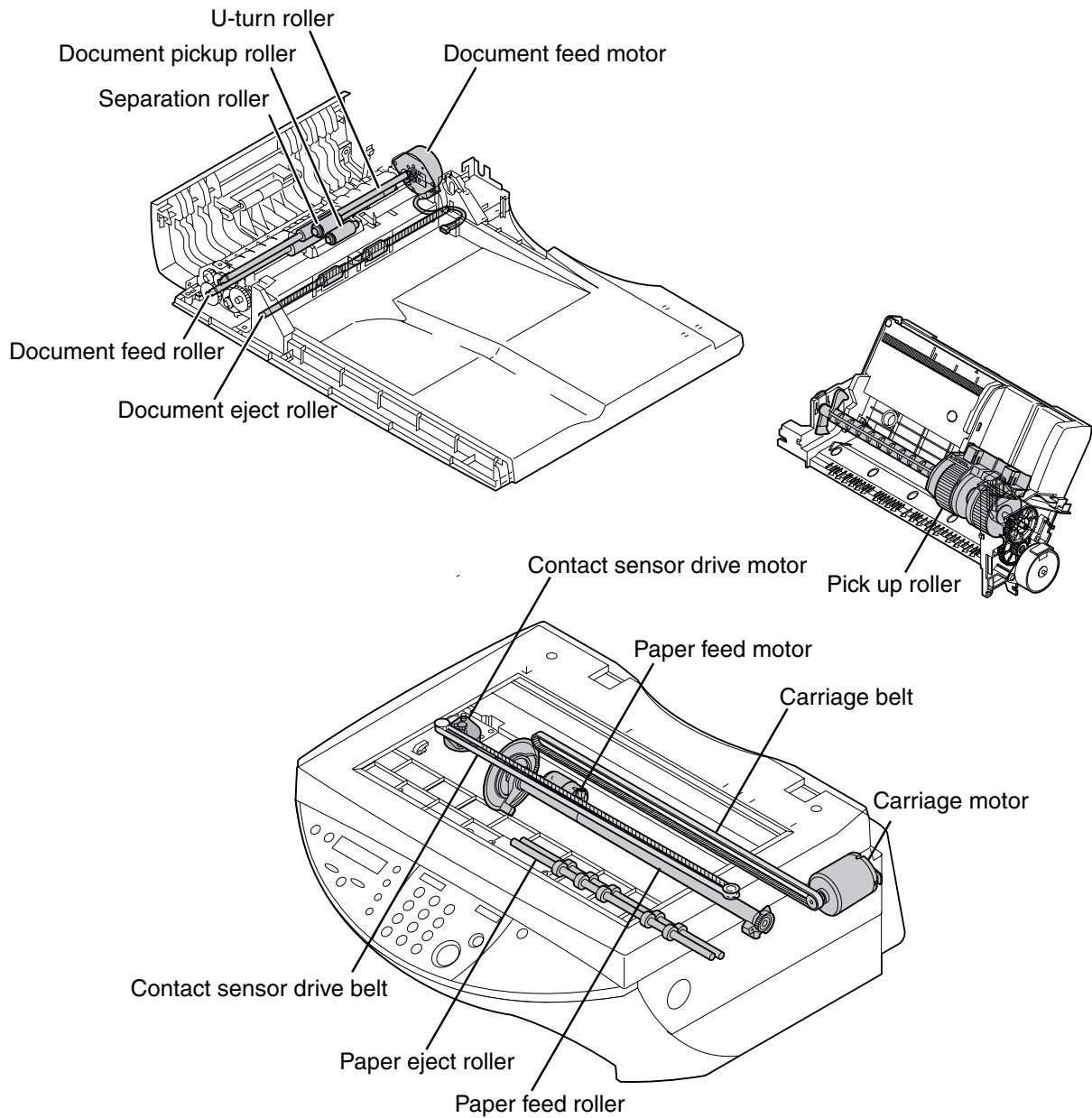


Figure 2-1 Mechanical Layout

The electrical parts are laid out as follows.

- SCNT board system control
- PCNT board printer control
- NCU board (MultiPASS F50only) interface with telephone line
- Modem board (MultiPASS F50only) interface with telephone line
- Modular board (MultiPASS F50only) interface with telephone line
- Power supply unit supplies power to the units and assemblies
- OPCNT board detects keyboard operation and displays machine information
- ADF board(MultiPASS F50only) interface with SCNT board

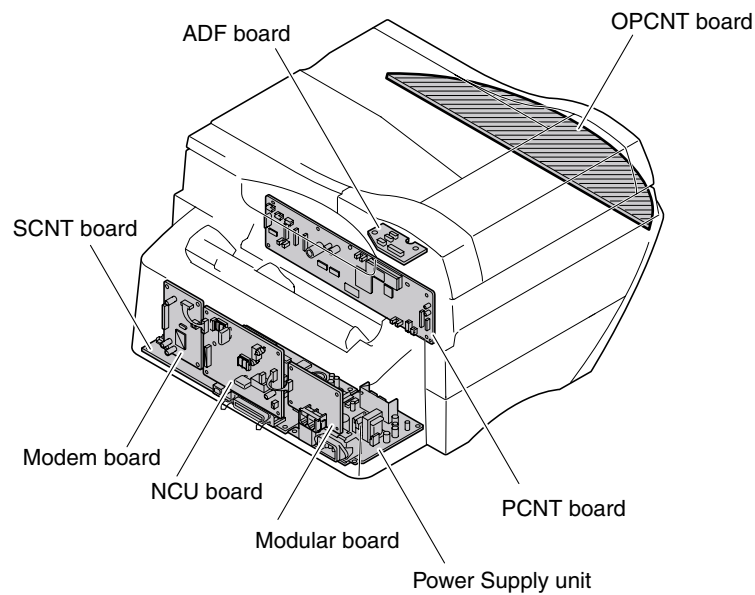


Figure 2-2 Electrical Layout

- 9 sensors detect unit and assembly statuses

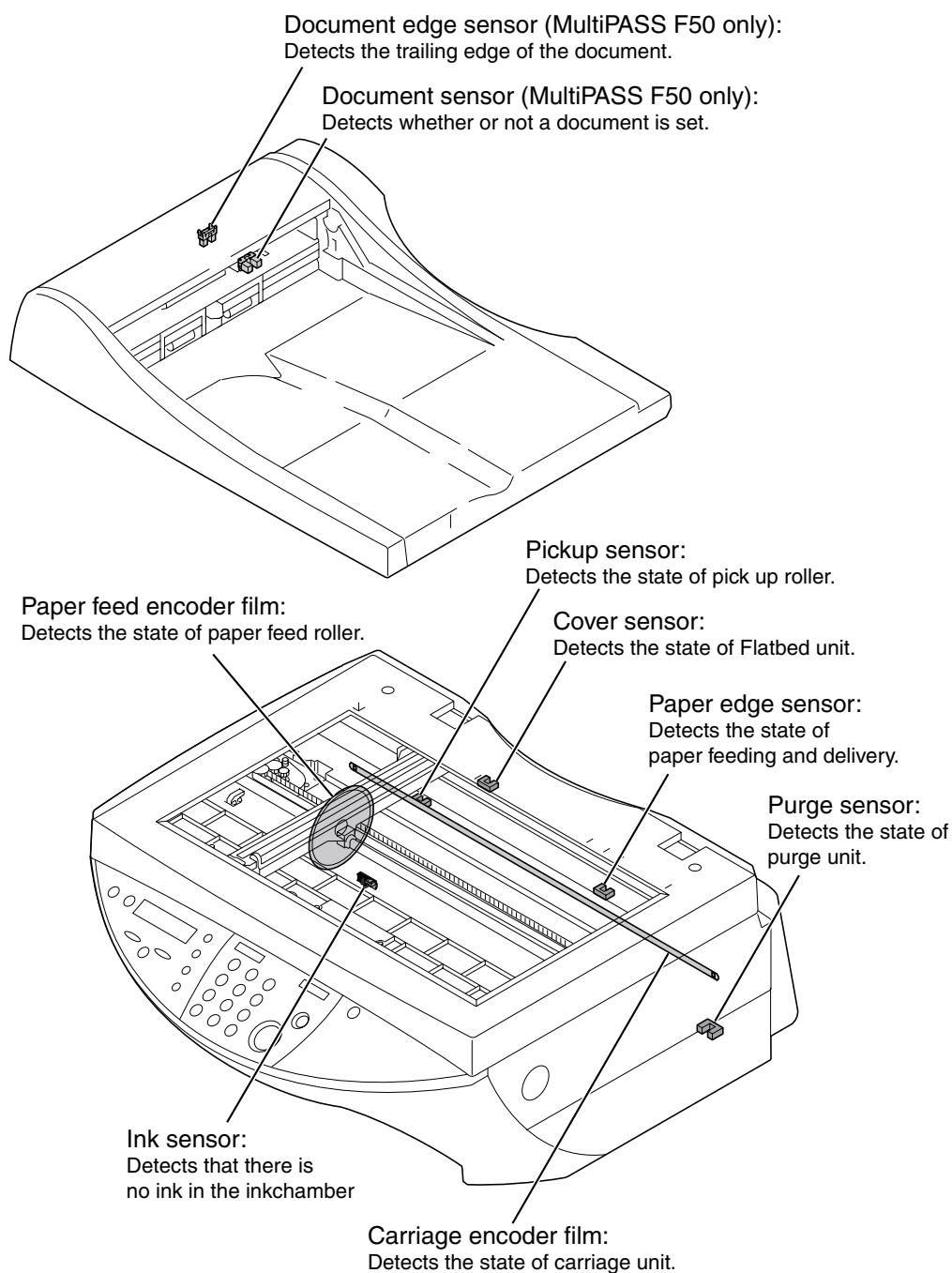


Figure 2-3 Sensor Layout

2. SCANNER MECHANISM

The scanner section scans documents that are to be sent or copied.

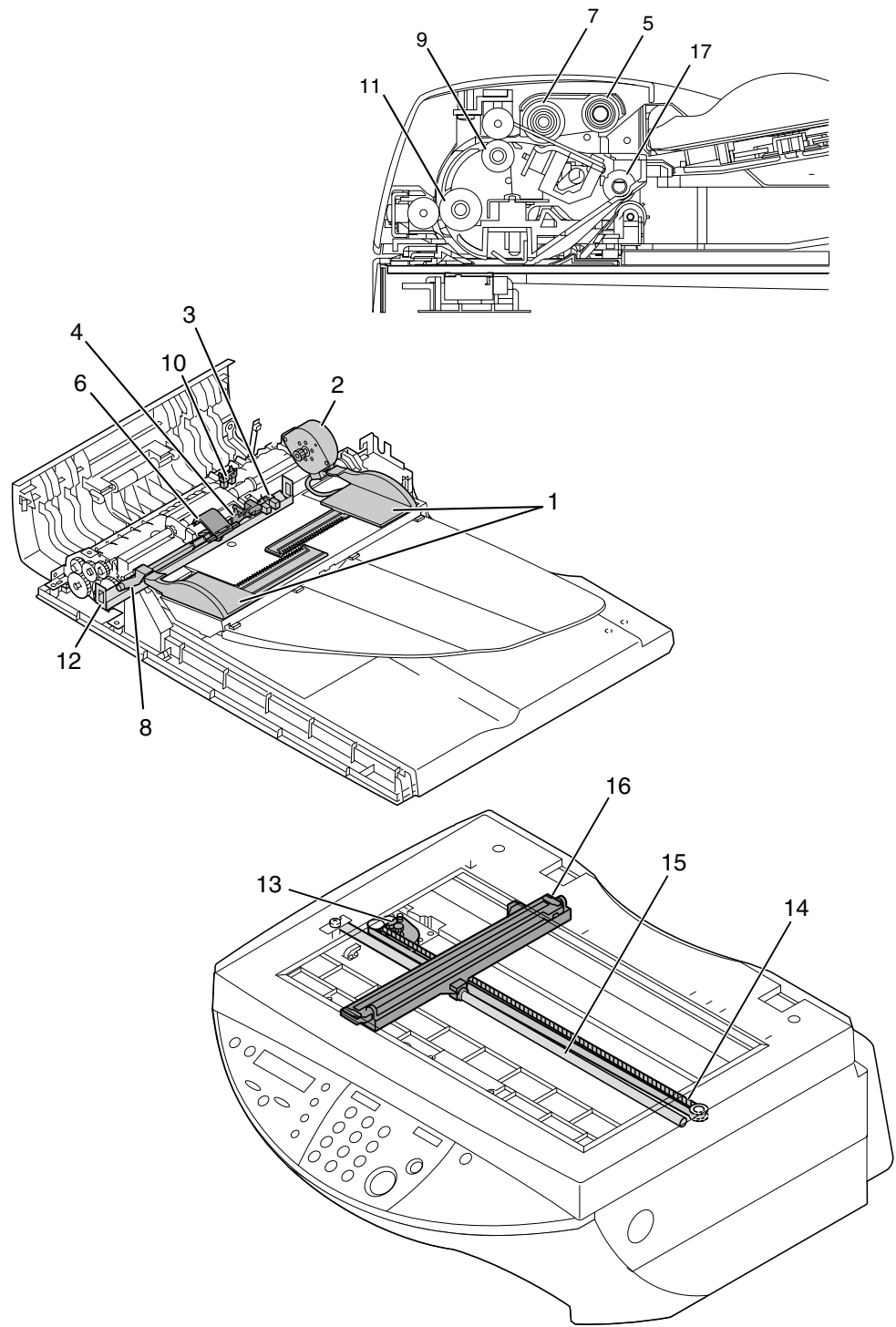


Figure 2-4 Document Feed Section

Names and function of parts

1. Paper Guide (MultiPASS F50 only)

When properly adjusted to the width of the documents, the guide will hold documents in the horizontal direction to prevent them from skewing when fed.

2. Document feed motor (MultiPASS F50 only)

This motor drives all the rollers in the scanner sections.

3. Document Sensor (DS, MultiPASS F50 only)

This sensor uses an actuator to detect the presence of documents to be scanned, and sends that information to the SCNT board by the way of the ADF board.

4. Document stopper (MultiPASS F50 only)

This stopper is located to the side of the separation rollers, and prevents documents from entering too far inside the scanning section. This stopper is located here to improve document loading and prevent double feeding or non-feeding due to defective If documents.

5. Document pickup roller (MultiPASS F50 only)

The document pickup roller is used to pick up a document and feed it to the separation roller.

6. Separation guide (MultiPASS F50 only)

Separates the documents to double-feeding.

7. Separation roller (MultiPASS F50 only)

This roller uses difference in the coefficients of function of the separation guide, document and separation roller to separate each of the sheets in a multiple-page document.

8. Document feed lever (MultiPASS F50 only)

This lever switches between automatic document feed and manual document feed. Damage to the document caused by the separation roller can be minimized by switching to the manual document feed position when sending single sheets such as thick-stock paper or photographs.

9. U-Turn roller (MultiPASS F50 only)

The U-turn roller is used to feed a document to the document feeder roller.

10. Document edge sensor (DES, MultiPASS F50 only)

Using an actuator, the DES detects the edge of a document just before it reaches the contact sensor, and sends this information to the SCNT board.

11. Document feed roller (MultiPASS F50 only)

This roller feeds documents to the color contact sensor after they are separated by separation roller.

12. White sheet

This white sheet is used as a whiteness reference when pre-scanning documents.

13. Contact sensor drive motor

The flatbed motor is used to drive the contact sensor.

14. Contact sensor drive belt

The CS belt is used to convey the driving force of the flatbed motor to the contact sensor.

15. CS shaft

The CS shaft is used to keep the direction of the driving force of the contact sensor.

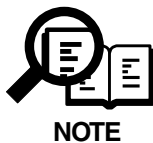
16. Color contact sensor

The color contact sensor scans the image data from the document, converts it to serial data, and transmits it to the SCNT board as electrical signals. The color contact sensor has a scanning resolution of the 600dpi and outputs Red, Green and Blue analog image data.

17. Paper eject roller (MultiPASS F50 only)

This roller ejects documents fed from the document feed roller.

3. PRINTER SECTION



The printer section mechanism in this model is taken from the S600 BJ printer.
Some illustrations are used in common with S600.

3.1 Overview of the Printer's Mechanical Parts

The printer's mechanical parts consist of the BJ cartridge, carriage, purge section, and paper feed section. Each part is explained below.

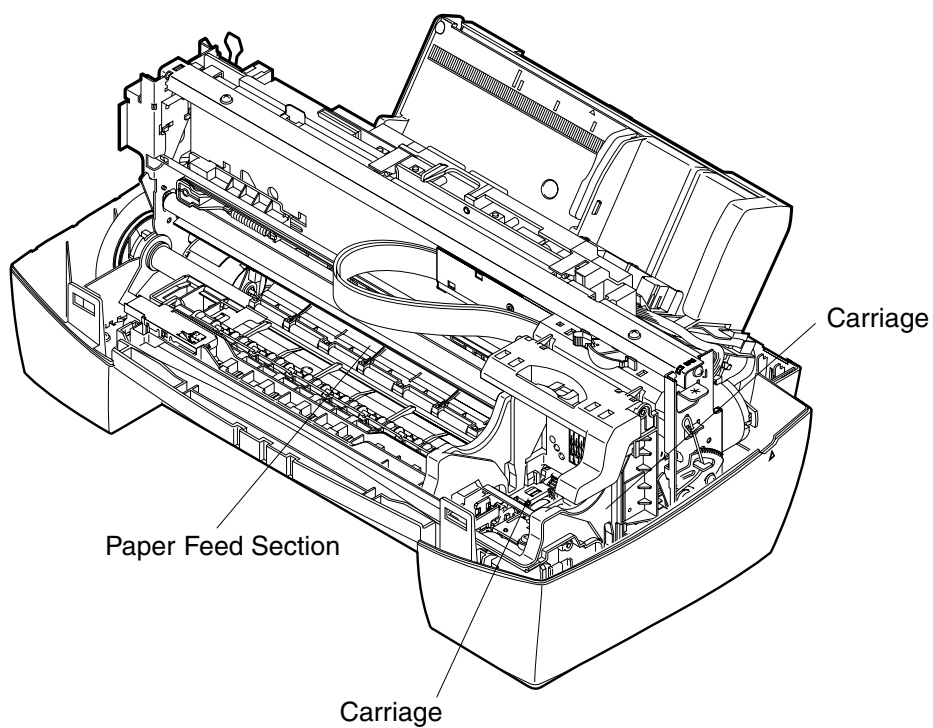


Figure 2-5 Printer's Mechanical Parts

3.1.1 Carriage

The carriage holds one BJ cartridge in place. The carriage belt driven by the carriage motor (DC motor) moves the carriage horizontally back and forth across the paper.

Regarding the carriage's position control, the initial position is detected when the carriage goes against the right wall which is the home position.

After that, the carriage position is detected by reading the pulse from the encoder film.

The paper spacing position is read from the carriage position when the carriage goes against the left wall.

3.1.2 Purge section

The purge section, driven by a dedicated purge motor, consists of the wiper, pump, cap, and carriage lock.

The wiper maintains the head face surface to ensure high-quality printing. The ink suction feature enables the ink to be readily ejected from the nozzles.

When the BJ cartridge is not in use, the nozzles are protected by a cap, and the carriage is locked in place. The motor's running direction controls the ink suction operation or capping/wiping/valve open/closing operation.

3.1.3 Paper feed section

The paper feed section consists of the paper feed components, paper transport section, and paper discharge section.

Paper feed

Paper is fed automatically by the auto sheet feeder.

The auto sheet feeder is driven by the paper feed motor. Paper of various sizes up to legal size can be stacked and fed automatically (the paper is transported to the paper transport section).

Paper transport section

The paper feed section, driven by the paper feed motor, keeps the sheet of paper flat and horizontal on the platen and rotates the feed roller to move the paper horizontally to and beneath the print head.

Paper eject section

After printing, paper is ejected onto the discharge tray by the eject rollers.

After the sheet of paper leaves the paper feed rollers, the eject rollers take over to eject the paper.

3.2 Paper Feed Section

3.2.1 Paper feed components

The paper feed components include an ASF incorporating a friction separation system which uses a separation pad. Compared to previous ASF systems, it has a very strong paper feed force.

It consists of the following parts: Paper feed roller and separation pad, pressure roller and return corner, pressure plate, motor, and sensor.

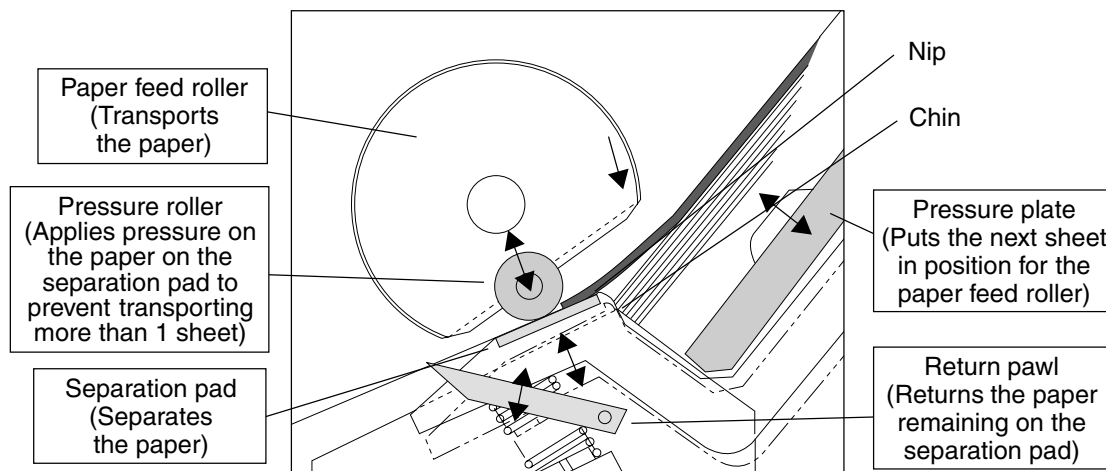


Figure 2-6 Paper Feeding

The motor is a constant-current stepping motor. It drives the paper feed roller with 1-2-phase driving. There is a sensor on the paper feed roller to detect the paper feed roller's initial position.

The pressure roller and return corner prevent the paper that could not be completely separated by the separation pad from proceeding to the paper transport section. The pressure roller presses down the sheet of paper that is on the separation pad. It prevents multiple sheets from being transported. The paper therefore has a back tension (counteracting force against the feed roller's pulling force on the paper). Also, the return corner is for returning the paper remaining on the separation pad. The timing for returning the paper changes depending on the paper type and length selected with the printer driver.

3.2.2 Friction separation system

The friction separation system's paper separation method is explained below.

1. When the paper feed roller turns, the top sheet of the paper stack is taken to the nip where the pressure roller contacts the paper feed roller.
2. When the top edge of the paper reaches the nip, the paper pushes down the pad by the amount of the paper's thickness. At this point, since the frictional force between the paper and separation pad is less than the frictional force between the paper and paper feed roller, the paper feed roller further transports the paper into the printer.
3. At this time, the next sheet of paper stops at the chin.
4. If the next sheet of paper could not be stopped at the chin in step 3, it will be stopped on the separation pad because the frictional force between the paper sheets is less than the frictional force between the paper and separation pad. Only the top sheet is therefore sent into the printer.

3.2.3 Paper transport section

At the printing section, an unchanging gap between the paper and print head is maintained while the paper is pressed against the platen as it goes between the pressure roller and paper feed roller and between the spur and eject roller.

For paper transport control during printing, a metallic, high-precision paper feed roller having a coat of ceramic paint and an optical encoder film affixed on it is used. The paper feed roller is driven by a DC motor via a belt. The paper transport is controlled according to the signal read from the encoder film. The paper is transported in 1/1440-inch increments.

3.2.4 Paper discharge section

While the sharp-tipped spur presses down the printed side of the paper (without marking the paper) against the eject rollers, the eject rollers discharge the printed paper.

The paper discharge section consists of the eject rollers and spur. The sheet of paper brought to the printing starting position is printed on as it goes around the platen. The paper is transported by the paper feed rollers and pinch roller. When printing is completed, the paper is ejected by the eject rollers and spur. A Spring tabs on the left and right keep the discharged sheets stacked properly.

3.3 About the Ink Sensor

Consisting of an LED and photo sensor, the ink sensor uses optical means to detect whether there is ink in the ink tank.

At the bottom of the ink tank is an indentation that works like a prism.

When there is ink in the ink tank, the refractive index of the ink and the prism's resin material is about the same. Therefore, the reflected amount of light is small.

When the ink is exhausted, the refractive index of the air and the prism's resin is very different, so all the light entering the sensor is reflected and the amount of reflected light is high.

The ink sensor detects the difference in the reflected light amount to determine whether or not there is ink in the tank. The MPU detects the voltage that changes according to the change in the reflected light amount. The analog value that is input is converted to a digital value by an internal A/D converter.

When the printer detects no ink in the ink tank, it indicates "ink low" on the status monitor for the respective ink tank. After the printer detects no ink in the ink tank, it starts to count the number of ejected dots corresponding to the amount of ink (about 20% of the ink amount) in the sponge and it starts to detect the no-ink error.

This error is detected in the following cases: While the power is ON, when the front cover is closed, after the pumping operation, or after the set number of dots have been printed. If the front cover is opened during the ink amount measurement, the external light may prevent an accurate measurement. The presence of an ink tank will also not be detected. If there is no ink tank, there will be no reflected light and the printer will therefore assume that there is ink.

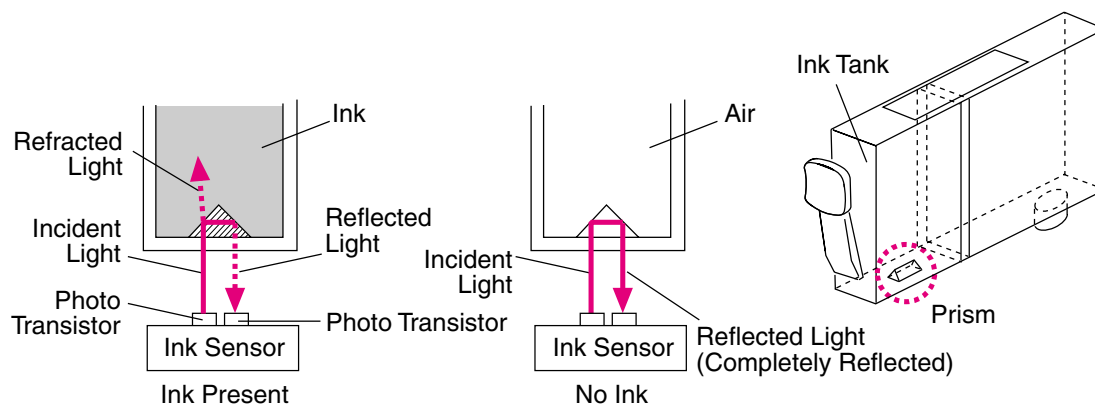


Figure 2-7 Ink Sensor



NOTE

Not Correctly Detecting the Absence of Ink

The mechanisms of the product are designed in such a way that the following operations can at times prevent the correct detection of the absence of ink, not printing received images and, as a result, generating a blank output.

- While ink is present, the flatbed ass'y is opened, the ink tank is removed, and the flatbed ass'y is closed without putting back the ink tank.
 - While ink is present, the flatbed ass'y is opened, the ink tank is removed, and the flatbed ass'y is closed after improperly putting back the ink tank (i.e., without hearing a clicking sound).
 - While ink is present, the flatbed ass'y is opened, and the flatbed ass'y is closed after fitting an ink tank whose ink chamber is empty.
-

3.4 Purge Section

3.4.1 Purge section functions

In order to maintain good printing quality, the purge section maintains the BJ cartridge's nozzles. The purge section's functions consist of capping and cleaning.

a) Capping

The purge unit's cap is pressed against the print head's face to protect the nozzles from dust, etc., and to prevent the nozzles from drying out. To prevent the capping position from shifting, the carriage is locked in place at the same time.

When the cap is open while the printer is on standby for printing and a certain period of time elapses (55 sec. with no paper or 20 min. with paper loaded), the print head will be capped automatically. You can also cap the print head by pressing the POWER button to turn off the printer.

b) Cleaning

Cleaning executes the following operations:

Wiping: Paper residue and dried ink on the print head's face plate are wiped off.

Suction: The ink is sucked out of the print head to refresh the nozzles with new ink.

Maintenance jet: To eliminate any air bubbles in the head's nozzles and to remove waste particles near the nozzle openings, ink is ejected from the nozzles onto the cap and maintenance jet receptacle.

Cleaning is performed at the times below to ensure that the head produces high-quality printing.

3.4.2 Purge section components

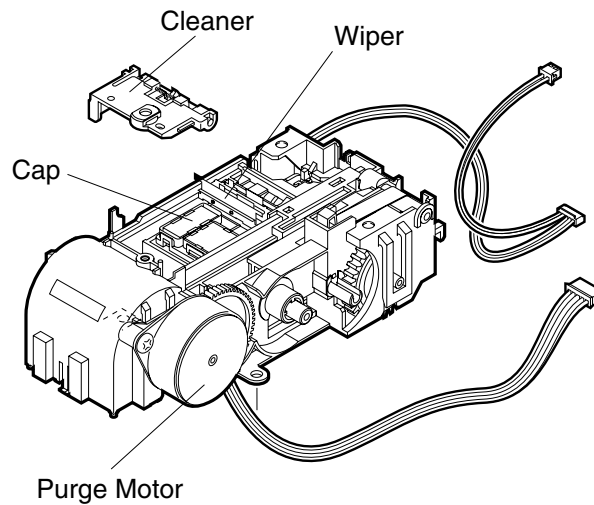


Figure 2-8 Purge Section Components

a) Purge driving motor

The purge motor drives the wiper, carriage lock, and pump. It is a constant-voltage motor operating with a 1-2 phase drive.

b) Wiper

The wiper consists of a wiper and wiper cleaner.

The wiping operation is executed while the carriage is fixed at the purge section. It wipes the print head's nozzle array in a vertical motion.

c) Cap

The rubber cap protects the print head (capping operation) and sucks out (pumping operation) the ink in the cap.

When the carriage moves to the capping position, the cap is pressed against the print head's face plate. There is a different cap for the black and color print heads.

An ink tube connects the rubber cap to the pump and air valve.

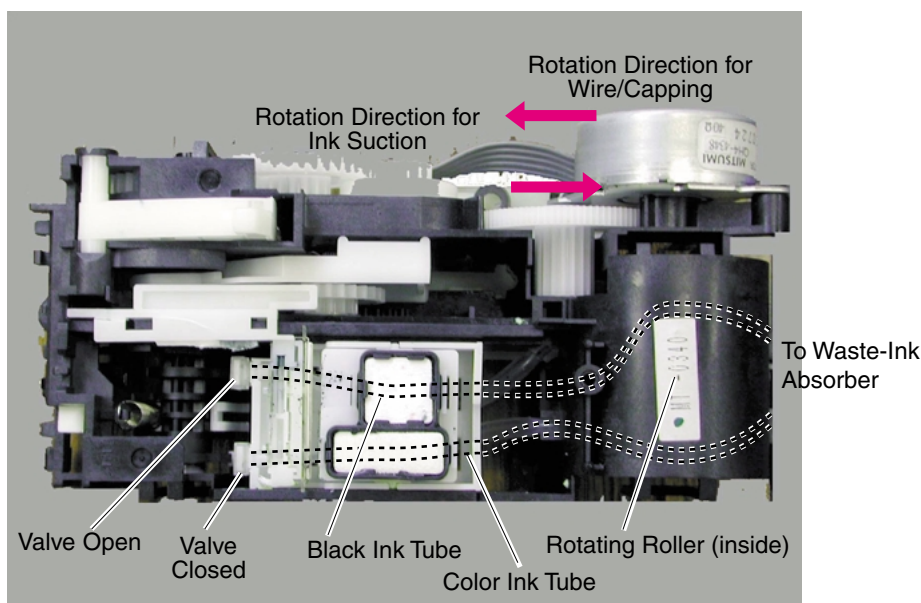


Figure 2-9 Pump Operation

d) Pump

This is a tube pump system consisting of two ink tubes (one for black and one for color) pressurized by a rotating roller. A negative pressure is thereby created to suck the ink. Inside, there is a valve dedicated to black ink and one dedicated to color ink. When the valves close or open separately or simultaneously, only the black ink (color valve open) or color ink (black valve open) can be sucked or both inks can be sucked (black and color valves closed).

The amount of ink sucked can be high, medium, or low depending on how much the roller rotates.

The pumping operation is executed with the rotation of the roller after the carriage is released from the capping position and both valves are opened.

The degree of rotation of the pump's roller and the timing of the rotation are controlled by the step count in accordance with the initial position detected by the pump sensor.

The two tubes are placed right before the waste-ink absorber. By mixing pigment ink and dye ink, ink hardening is prevented.

3.5 Ink Suction Amount in the Cleaning Mode

The printer has five cleaning modes (A to G). Cleaning is executed for maximum effectiveness and efficiency. The cleaning operation is selected depending on the respective condition. The ink suction operation differs depending on the condition at three occasions: Operation by the user, cover open/closing, and before printing starts.

- Operation by the user: Manual ink suction (Including printer driver operation)
- Cover open/closing: Cleaning at printer arrival
- Before printing starts: Other than manual suction

Mode			Suction Amount (g)	Precondition*
Cleaning A	All colors	Bk+Cl	0.15+0.36	Dot count suction, Manual suction (All colors) *2, timer suction (Time not set)*4
	Bk	Bk	0.15	Dot count suction, Manual suction (Bk) , timer suction (60*5 ~ 336 h)
	Cl	Cl	0.36	Dot count suction, Manual suction (Cl) , timer suction (120 ~ 336 h)
Cleaning D	All colors	Bk+Cl	0.3+0.72	Tank replacement*3 after soft power ON (All colors)
	Bk	Bk	0.3	Tank replacement*3 after soft power ON (Bk)
	Cl	Cl	0.72	Tank replacement*3 after soft power ON (Cl)
Cleaning E	All colors	Bk+Cl	0.45+0.72	Long timer suction (336 h ~)
Cleaning F	All colors	Bk+Cl	0.45+1.08	When print head is replaced, at printer arrival
Cleaning G	All colors	Bk+Cl	1.5+1.08	Head refreshing

*1 If the preconditions overlap, the stronger suction will take priority.

Cleaning A < Cleaning D < Cleaning E < Cleaning F < Cleaning G

*2 In the case of the boxed preconditions, the suction starts right after the precondition is executed. For other preconditions, suction is executed right before the printing starts or during printing.

*3 Ink tank replacement is detected when the ink tank's status changes from H to L.

*4 Printing of EEPROM contents, etc., with the printer alone.

*5 Purging operations will be performed after 24 hours only the first 5 times, after which purging will occur at 60 to 336 hours intervals.



When checking the functions of the purge unit, measure the suction amount for a manual suction.

3.6 Printing Mode List

The printing mode list for the black, color, and photo BJ cartridges is shown below.

By setting the printer driver's "Dithering," "Paper Type," and "Printing Quality," the printer will operate in the printing modes below.

Table 1 PRINTING MODE LIST


Monochrome Printing

Paper Type	Resolution (dpi)							Default
	Bk=600 × 600	Bk=600 × 600	Bk=600 × 600		Bk=600 × 600			
Plain Paper	1Pass-Bi PigBk	1Pass-Bi PigBk			4pass-Bi PigBk			(High/Standard/ Fast)
Postcard		2Pass-Uni PigBk	4Pass-Uni PigBk					Standard/ Fast
Ink-jet P.O. Postcard		2Pass-Uni PigBk	4Pass-Uni PigBk					Standard/ Fast

Color Printing

Paper Type	Resolution (dpi)							Default
	Bk=600 × 600 Y=600 × 1200 CM=1200 × 1200	Bk=600 × 600 Y=600 × 200 CM=1200 × 1200	Bk=600 × 600 Y=600 × 1200 CM=1200 × 1200	CMY=1200 × 1200	Bk=600 × 600 Y=600 × 1200 CM=1200 × 1200	CMY=1200 × 1200	CMY=1200 × 1200	
Plain Paper	1Pass-Bi PigBk	1/4 Pass-Bi PigBk			4pass-Bi PigBk			High/Standard/ Fast
OHP Transparency		2Pass-Bi PigBk	4Pass-Bi PigBk+YMC					Standard/ High
T-shirt Heat Transfer Paper				6Pass-Bi YMC				Standard
Glossy Paper/ Glossy Postcard				4Pass-Bi YMC		6Pass-Bi YMC		Standard/ High
Glossy Film						4Pass-Bi YMC	6Pass-Bi YMC	Standard/ High
High-quality Paper				4Pass-Bi YMC		6Pass-Bi YMC		Standard/ High
Postcard/ Envelope		3Pass-Bi PigBk+YMC	4Pass-Bi PigBk+YMC					Standard/ High
Pro Photo Paper Photo Card						4Pass-Bi YMC	6Pass-Bi YMC	Standard/ High
Ink-jet P.O. Postcard		2Pass-Bi YMC	4Pass-Bi YMC					Standard/ High

Bk : Black PigBk : Pigment black Bi : Bi-directional
 C : Cyan YMC : Processed black Uni : Uni-directional
 M : Magenta
 Y : Yellow

 The shaded specifications are the default for the respective media.

4. NEW FUNCTION

There is no new function is this model.

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Chapter 3

Assembly and Disassembly

1. ATTENTION TO BE PAID DURING ASSEMBLY/ DISASSEMBLY

1.1 Safety Cautions

Electrical shock

In order to prevent any risk of electrical shock, always be sure to check that the power cord and modular jack have been removed. Also, remove all cables connecting to the computer. When conducting service that requires the main unit to be powered on, be sure to wear some kind of earthing, such as a wrist strap, etc. Otherwise, there is a danger of conduction and electrical shock.

Parts which are generally likely to cause electrical shock are as follows.

- Power supply unit primary (supplied with AC voltage)
- Telephone line primary
- LBP engine high voltage contacts (for high voltage during developing and transfer)

High temperature

In order to prevent burns during disassembly, allow at least ten minutes, after the power has been switched off, for the high temperature components to cool down.

General high temperature components are as follows.

- Motors
- Power supply unit
- Elements on driver ICs, etc., on PCBs (in particular, ICs with heatsinks)
- BJ cartridge aluminium plate (for BJ cartridge engine models)
- Fixing unit and peripheral covers (for LBP engines)

Battery Replacement

The batteries must be replaced correctly to avoid explosion. Do not replace any battery with one not indicated for the machine, ie., use one of the same type or equivalent. Be sure to dispose of used batteries according to local laws and regulations.

Fire

It is dangerous to throw lithium batteries and parts and components containing flammable substances, such as cartridges, etc., into fire. Such parts and components must be disposed of in accordance with local laws and regulations.

Ignition

When using solvents such as alcohol, etc., while conducting service, there is a danger of fire igniting from heat from internal circuitry and from sparks. Before using any such solvents, be sure to switch off the power and allow time for high temperature parts to cool down. Make sure that there is sufficient ventilation when working with solvents.

Movable parts

In order to prevent accidents with movable parts, be sure to remove the power cable when conducting service that requires disassembly. Also, take care that personal accessories and hair, etc., are not caught in any moving parts.

1.2 General Cautions

Damage due to electrostatic discharge

This machine contains contact sensors and printed circuit boards that use ROMs, RAMs, custom chips and other electronic components that are vulnerable to damage by electrostatic discharge.

Be careful to avoid any damage from electrostatic discharge when conducting service that requires disassembly.



Static electricity warning

Electrostatic discharge can destroy electronic components and alter electrical characteristics. Plastic tools and even your hands, if they are not earthed, contain sufficient static electricity to damage electronic components.

The following materials may be used as countermeasures against electrostatic discharge:

- an earthed, conductive mat,
- an earthed wrist-strap,
- crocodile clips for the purpose of grounding metallic parts of the main unit.

For service conducted on the user's premises, etc., where such countermeasure materials are not available, the following countermeasures may be employed.

- Use anti-static bags for the storage and carrying of PCBs and electrical elements.
- Avoid silk and polyester clothing and leather soled shoes, favouring instead cotton clothes and rubber soled shoes.
- Avoid working in a carpeted area.
- Before beginning the work, touch the grounded earth terminals of the main unit in order to discharge any static electricity.
- Use a wrist-strap and earth the metal parts of the main unit.
- PCBs and electrical elements must be lifted around the edges and their terminals must not be touched.



Caution against electrical shock while working with power on

In cases where service must be carried out with power on, via a connected power cable, be sure to wear an anti-static wrist-strap or other earth, in order to prevent an electrical path being created through your body.

Application of grease

Grease must not be applied to any parts that are not so designated. If grease comes into contact with the rubber cap of the purge unit or wire, the BJ cartridge nozzle may become blocked and the cartridge rendered unusable. Also, never use any other than the specified type of grease. Otherwise, plastic parts and rubber parts may melt or be otherwise deformed.

Attaching and removing cables

Attaching and removing cables with the power still on may cause breakdowns and should be avoided. In particular, flat cables are likely to cause short circuits. When attaching or removing cables, always be sure to turn the power off.

1.3 Product-Inherent Cautions

Prevention of ink-soiling

Be careful when handling the BJ ink cartridge nozzle, the ink pad, head cap, head wiper and waste ink pad. Residual ink may soil the main unit, working surfaces, your hands and clothes, etc. The ink is water-soluble, but because it contains pigments, it will not wash out of clothes.

The ink does not contain any substances that are harmful to humans, but does contain organic solvents (isopropyl alcohol 67-63-0, diethylene glycol 111-46-6, glycerin 56-81-5 and ethylene glycol 107-21-1). If the ink should accidentally get into someone's eyes, rinse the affected eye with plenty of clean water and seek medical attention. If a large quantity of ink is accidentally swallowed, seek medical advice immediately. In such a case, let the doctor know exactly what is written on the BJ cartridge label.

Conductivity of the ink

The ink used in the BJ cartridge is conductive. This means that, if the ink leaks, mechanical parts should be wiped with a dampened paper towel or similar and electrical circuits wiped with tissue paper so that all ink is removed from below the IC chips.

If power is switched on while ink is leaking on the electrical circuits, the circuitry may short out and be damaged. If ink is leaking, the power must be switched off.

1.4 Action in the Event of Abnormality (All Clear)

In the event of extreme noise or shock, etc., in very rare cases, the display may go out, and all the keys become inoperable. In that case, perform an All Clear. This operation returns all values and settings to their default settings. However, as all settings, such as received images and user data, service data, etc., will be re-initialised, be sure to note down any settings that you will need to re-enter later.

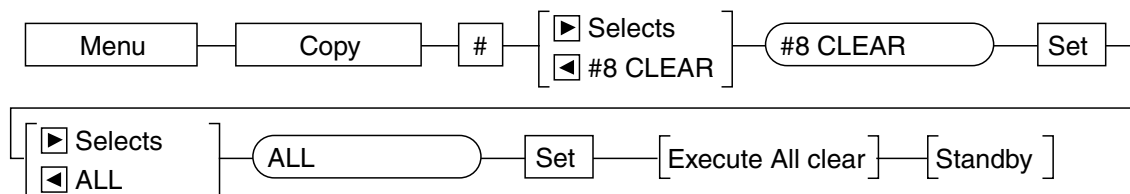


Figure 3-1 All Clear Operation



While waiting to return to the ready state after executing “All clear”, please do not press the Stop button. Doing so may cause a malfunction afterwards.

1.5 Removal of red screws prohibited

Since adjustment of the following red screws is very difficult in the field, they must not be loosened or removed.

- (a) The two paper spacing red screws (one on the right and left).
- (b) The two screws securing the paper feed motor.

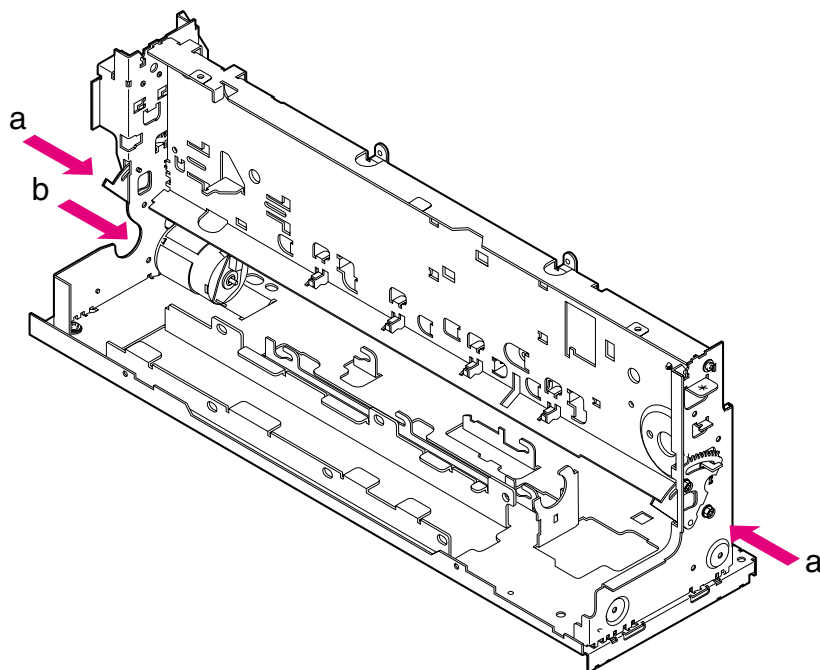


Figure 3-2 Do not Remove the Red Screws

2. DISASSEMBLY/ASSEMBLY

2.1 Parts Layout

The parts layout of this machine consists of the scanning assembly, printing assembly and printer.

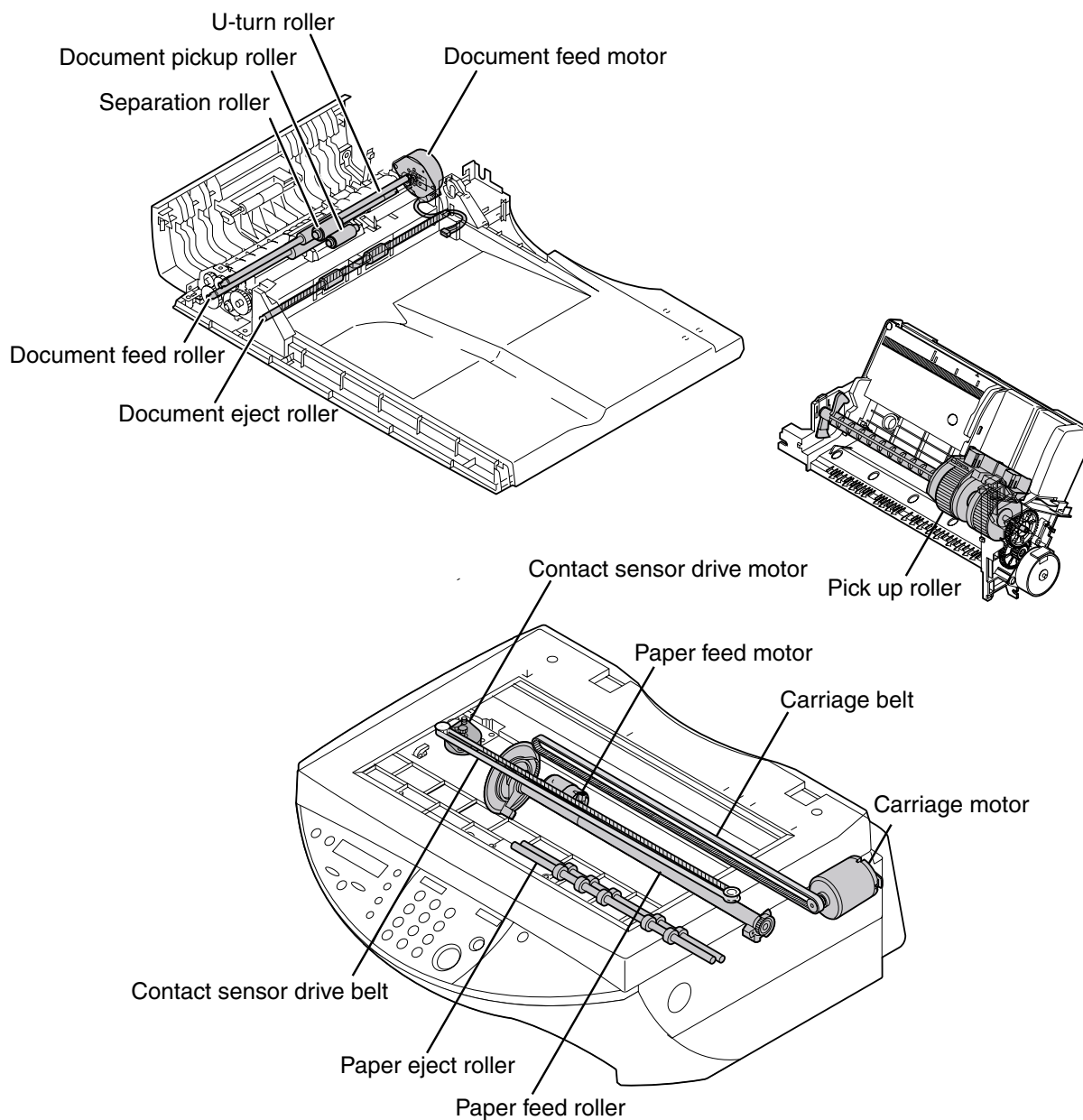


Figure 3-3 Mechanical Layout

The electrical parts are laid out as follows.

- SCNT board system control
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- Modem board (MultiPASS F50only) interface with telephone line
- Modular board (MultiPASS F50only) interface with telephone line
- Power supply unit supplies power to the units and assemblies
- OPCNT board detects keyboard operation and displays machine information
- ADF board(MultiPASS F50only) interface with SCNT board

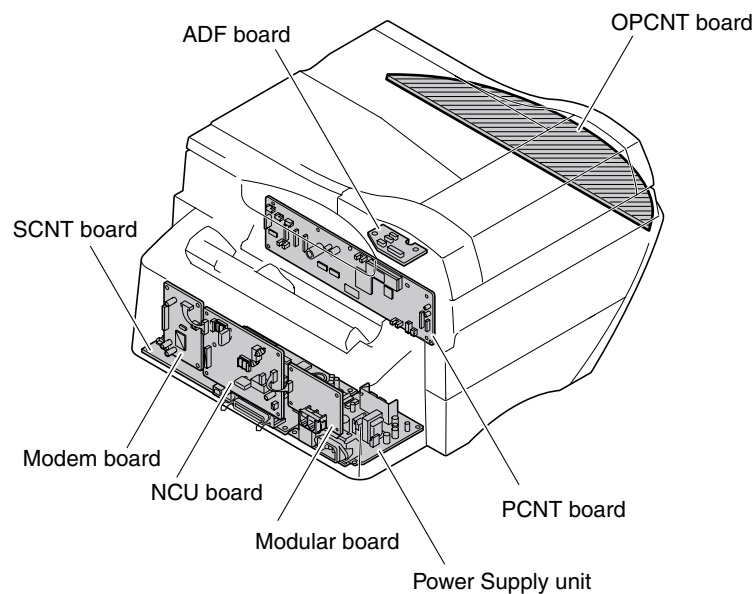


Figure 3-4 Electrical Layout

- 9 sensors detect unit and assembly statuses

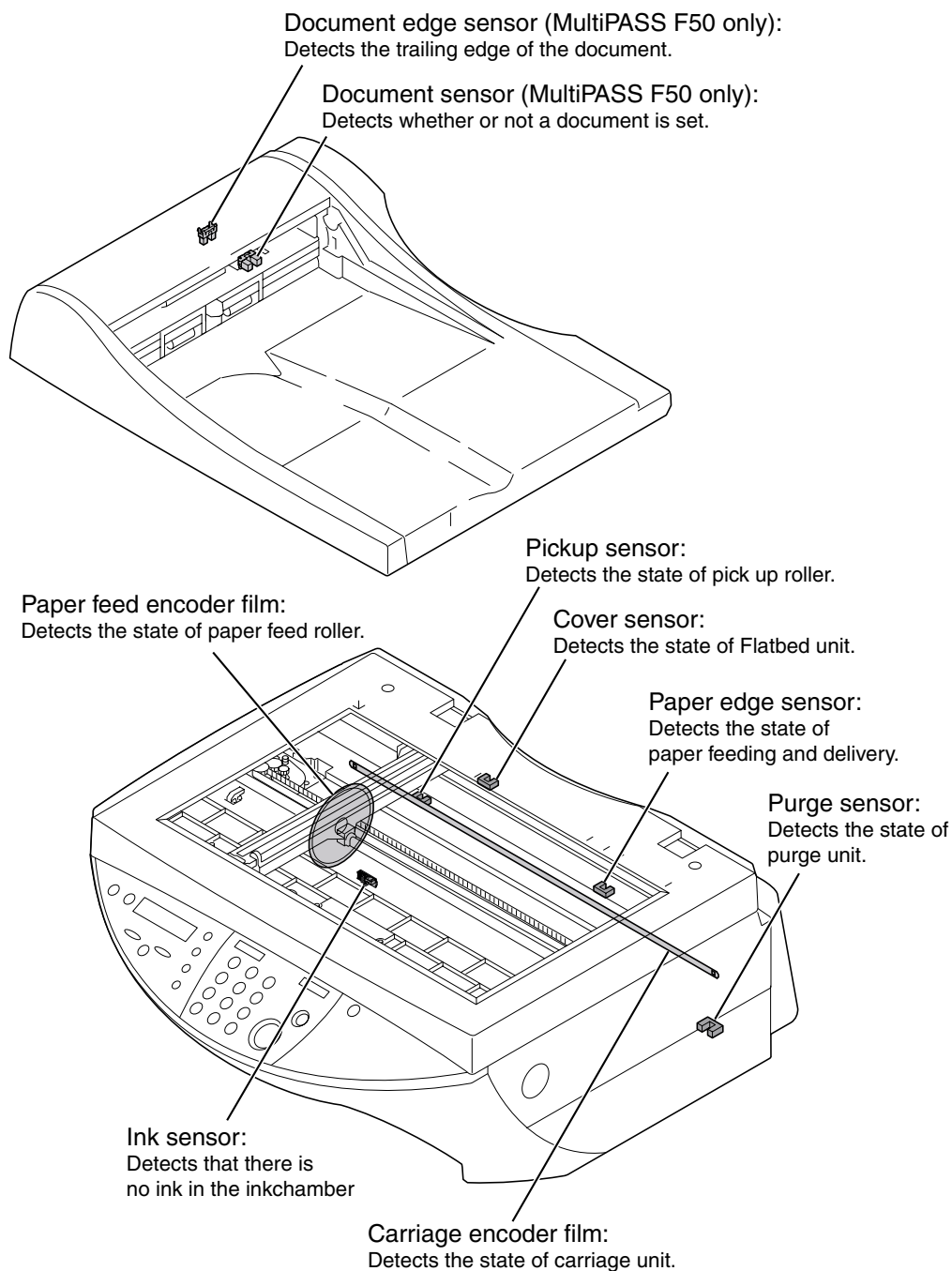


Figure 3-5 Sensor Layout

2.2 Disassembly Work-Flow

The work-flow for the disassembly of the main units is as follows. In order to replace parts, you need to confirm which parts have to be removed. Numbers in parenthese indicate the disassembly number.

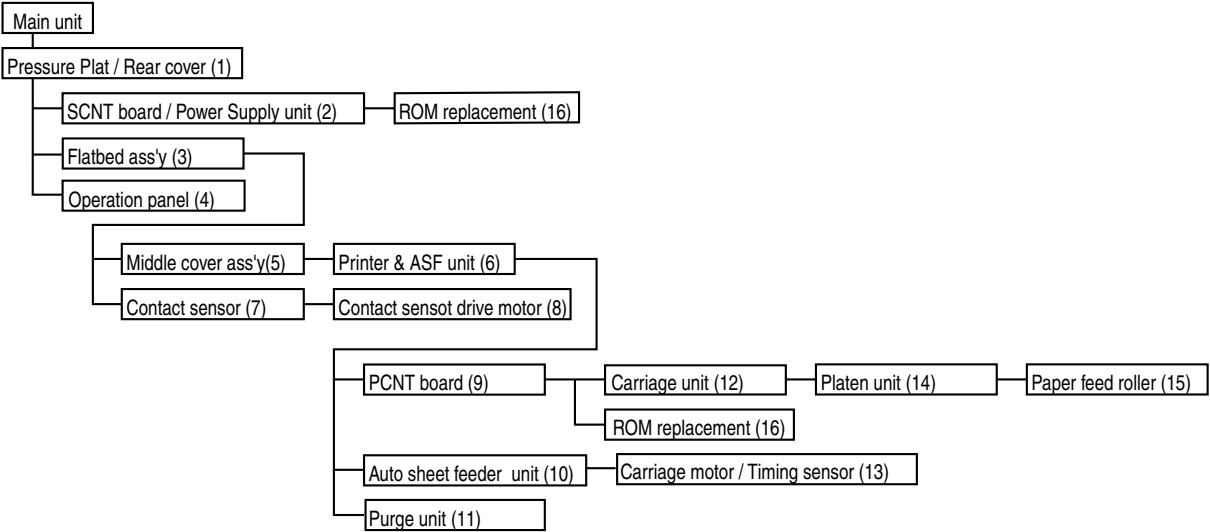


Figure 3-6 MultiPASS F30 Disassembly Work-Flow

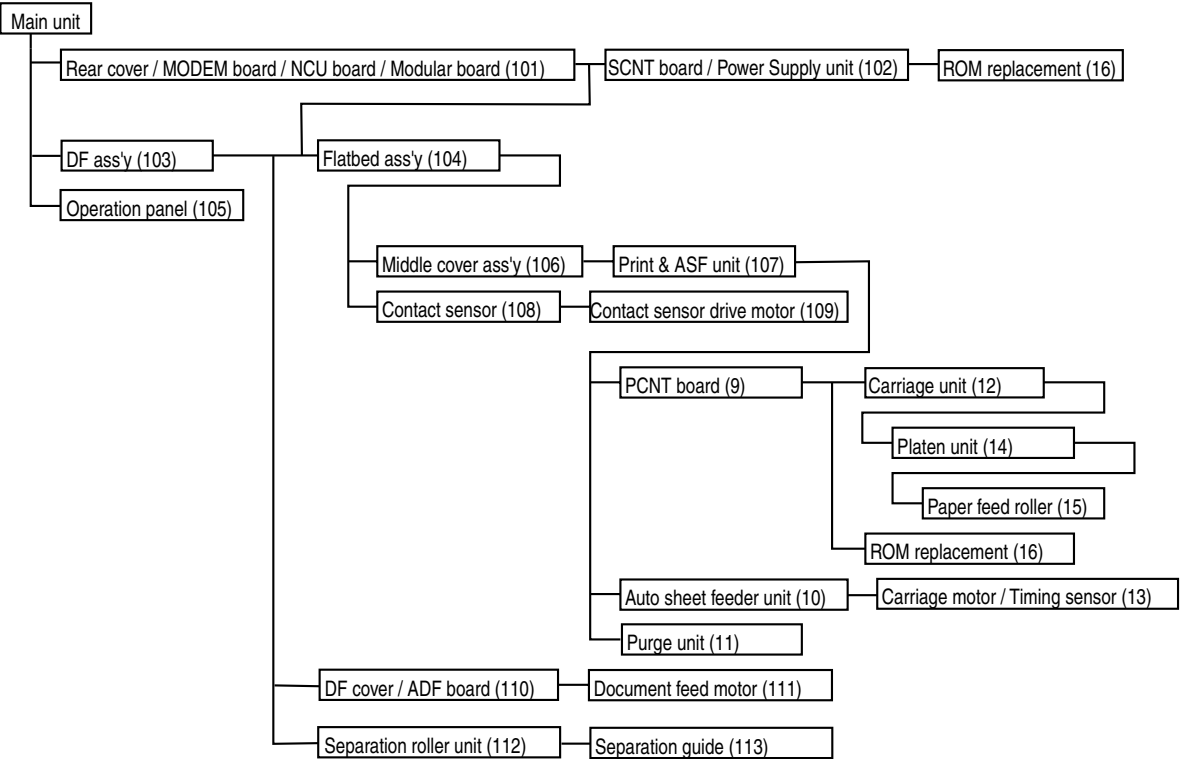


Figure 3-7 MultiPASS F50 Disassembly Work-Flow

2.3 Disassembly Procedure

Disassembly 1. Pressure plate, Rear cover

- (1) Lift the pressure plate to remove.
- (2) Remove the 5 screws (a), and detach the rear cover.

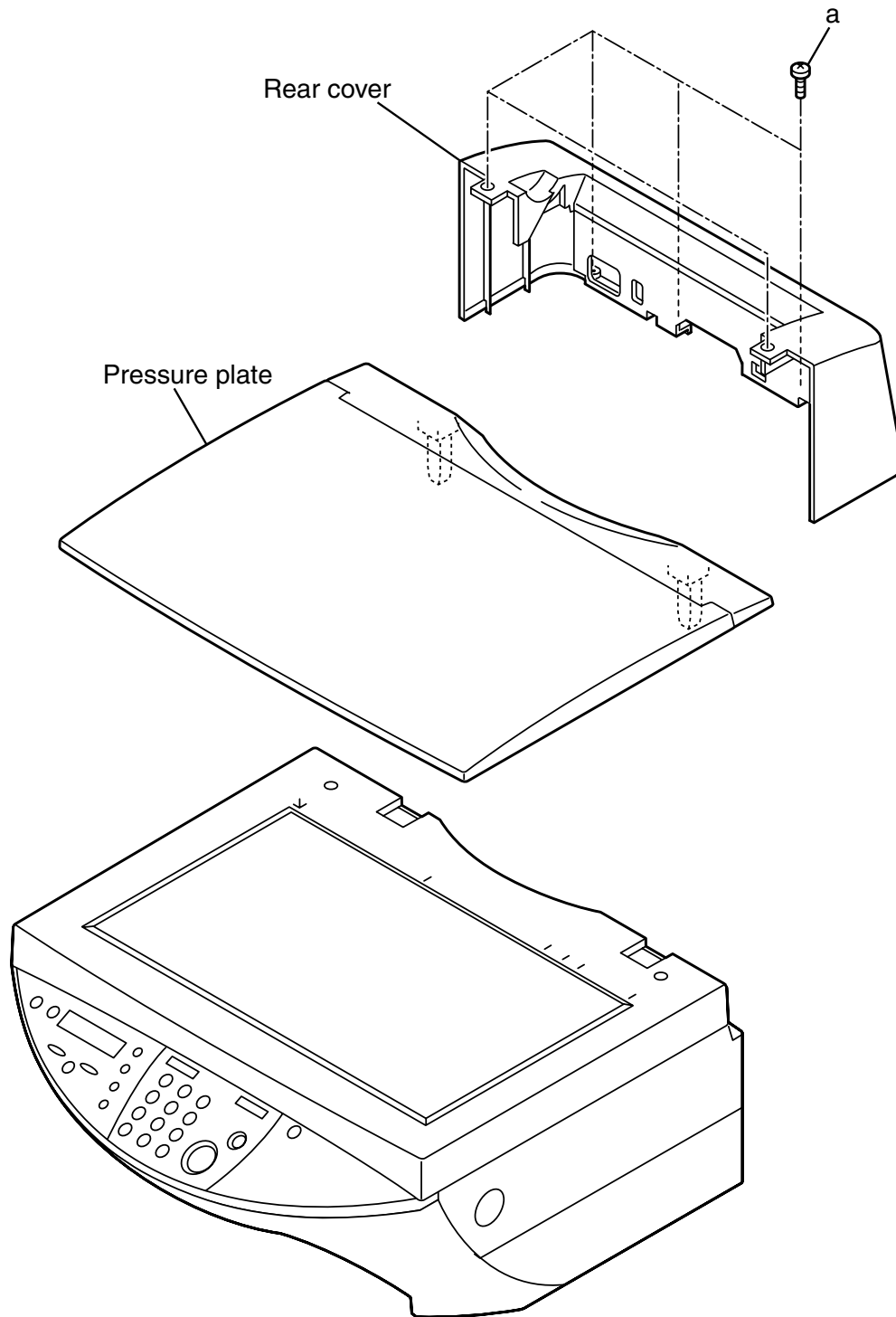


Figure 3-8 Disassembly 1

Disassembly 2. SCNT board, Power supply unit

- (1) Perform Disassembly 1 to remove the rear cover.
- (2) Remove the 3 screws (a), and detach the grounding wire.
- (3) Disconnect all cables from the SCNT board.
- (4) Remove the 3 screws (b), and detach the SCNT holder.
- (5) Remove the power supply cover.
- (6) Disconnect the connector (c) from the SCNT board.
- (7) Remove the 5 screws (d), and detach the SCNT board from the SCNT holder.
- (8) Remove the 2 screws (e), and detach the power supply unit from the SCNT holder.



REFERENCE

For details on ROM replacement, see Disassembly 16. ROM Replacement.

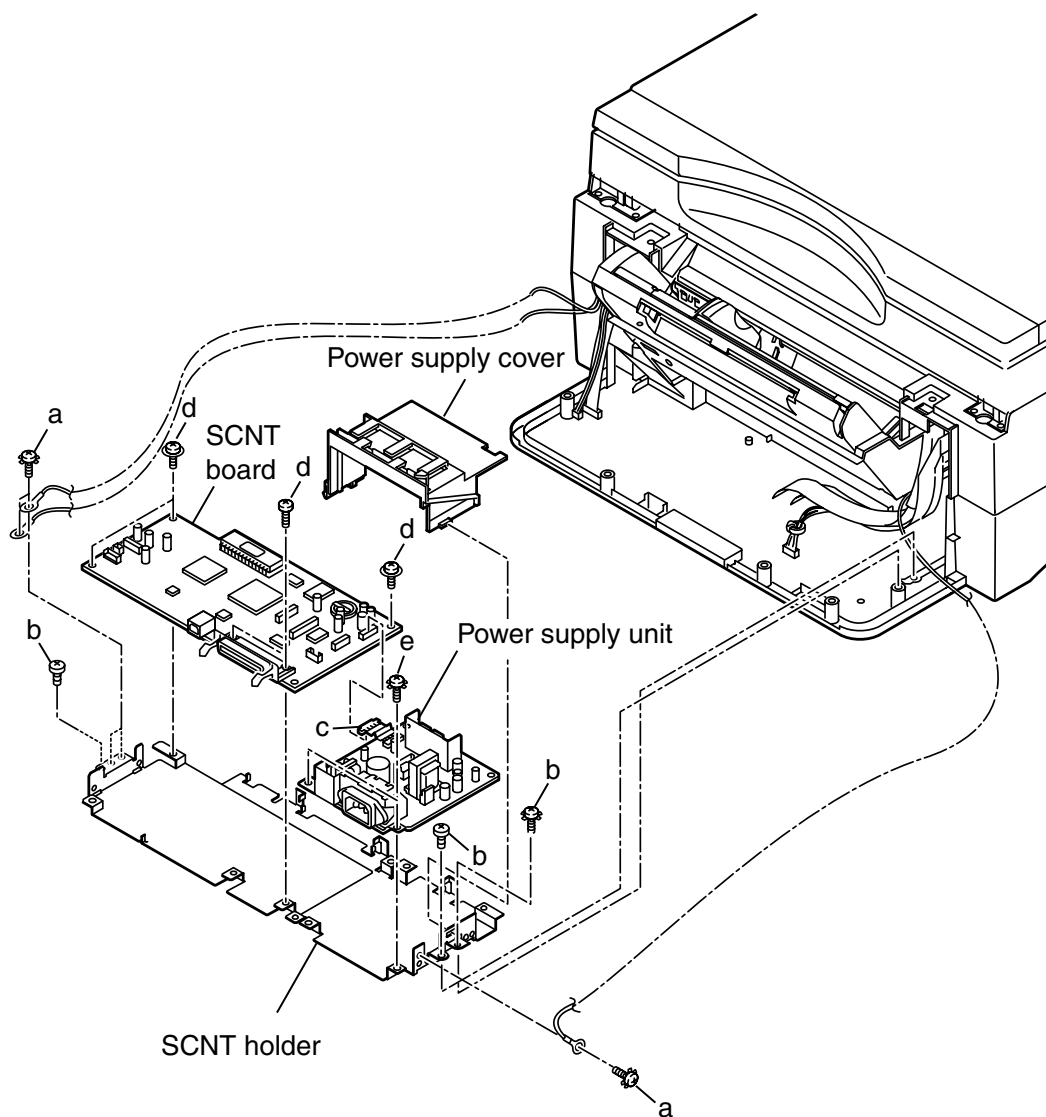


Figure 3-9 Disassembly 2



NOTE

Caution When Replacing SCNT Board

To replace the SCNT board, perform the following:

a) Caution before replacing

You will need to execute 'all clear' at the end of replacement. As necessary, print out the following data:

a-1) Image Data in Image Memory

The image data stored in image memory will be lost when the power is turned off. Before turning off the power, check to make sure that all images have been printed out.

a-2) User reports

Press the **Menu** button, and then select 'REPORTS/LIST' using the **</>** button. Press the **Set** button. Using the **</>** button, select the type of report to generate, and press the **Set** button.

a-3) Service reports

Select service mode, and select 'SERVICE REPORTS' using the **</>** button. Press the **Set** button; then, select the type of list to generate using the **</>** button.

b) Replacing the SCNT Board

- (1) Remove the existing board.
 - (2) To prevent exhaustion of the battery otherwise occurring in storage, the jumper plug (JP3) of the service SCNT board (if new) is not shorted. Be sure to short the plug before use.
 - (3) Mount the new SCNT board, and put back all parts you may have removed.
 - (4) Turn on the power, and execute 'all clear'. For details, see the instructions to follow in response to an error (See this Chapter 1.4 Action in the Event of Abnormality (All Clear)).
 - (5) After executing 'all clear', enter the data you have previously printed out as necessary (battery backup).
-

Disassembly 3. Flatbed ass'y

- (1) Perform Disassembly 1.
- (2) Remove the screw (a), and detach the grounding wire.
- (3) Remove the cable (b), and free the cable from the core.
- (4) Remove the cable (c).
- (5) Remove the joint shaft. Be sure to free the claw (d) while doing so.
- (6) Remove the left/right torsion bar.
- (7) Remove the flatbed ass'y.

Disassembly 4. Operation panel unit

- (1) Push the button, and open the flatbed ass'y.
- (2) Remove the 5 screws (e).
- (3) Free the cable (f) from the operation panel unit, and detach the operation panel unit.

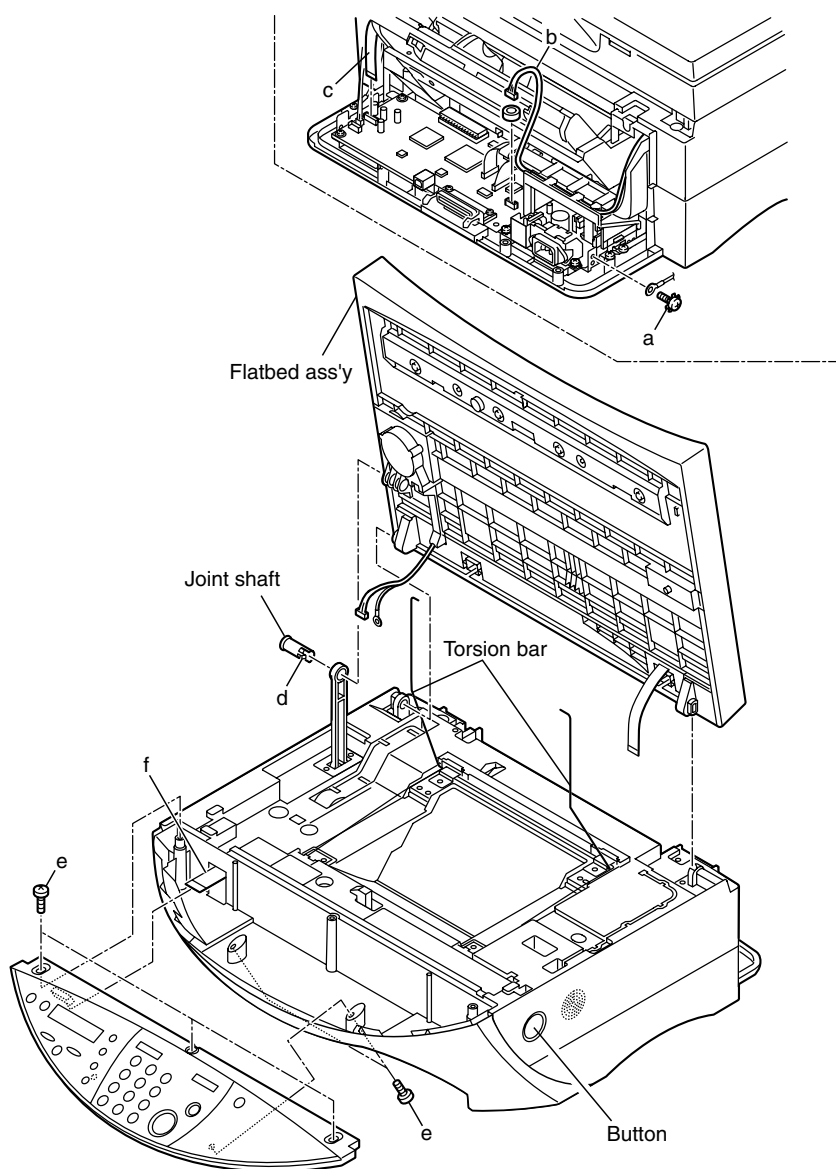


Figure 3-10 Disassembly 3 and Disassembly 4

Disassembly 5. Middle cover ass'y

- (1) Perform Disassembly 3.
- (2) Remove the 2 cables (a).
- (3) Remove the screw (b), and detach the grounding wire.
- (4) Remove the 4 screws (c), and detach the middle cover ass'y.

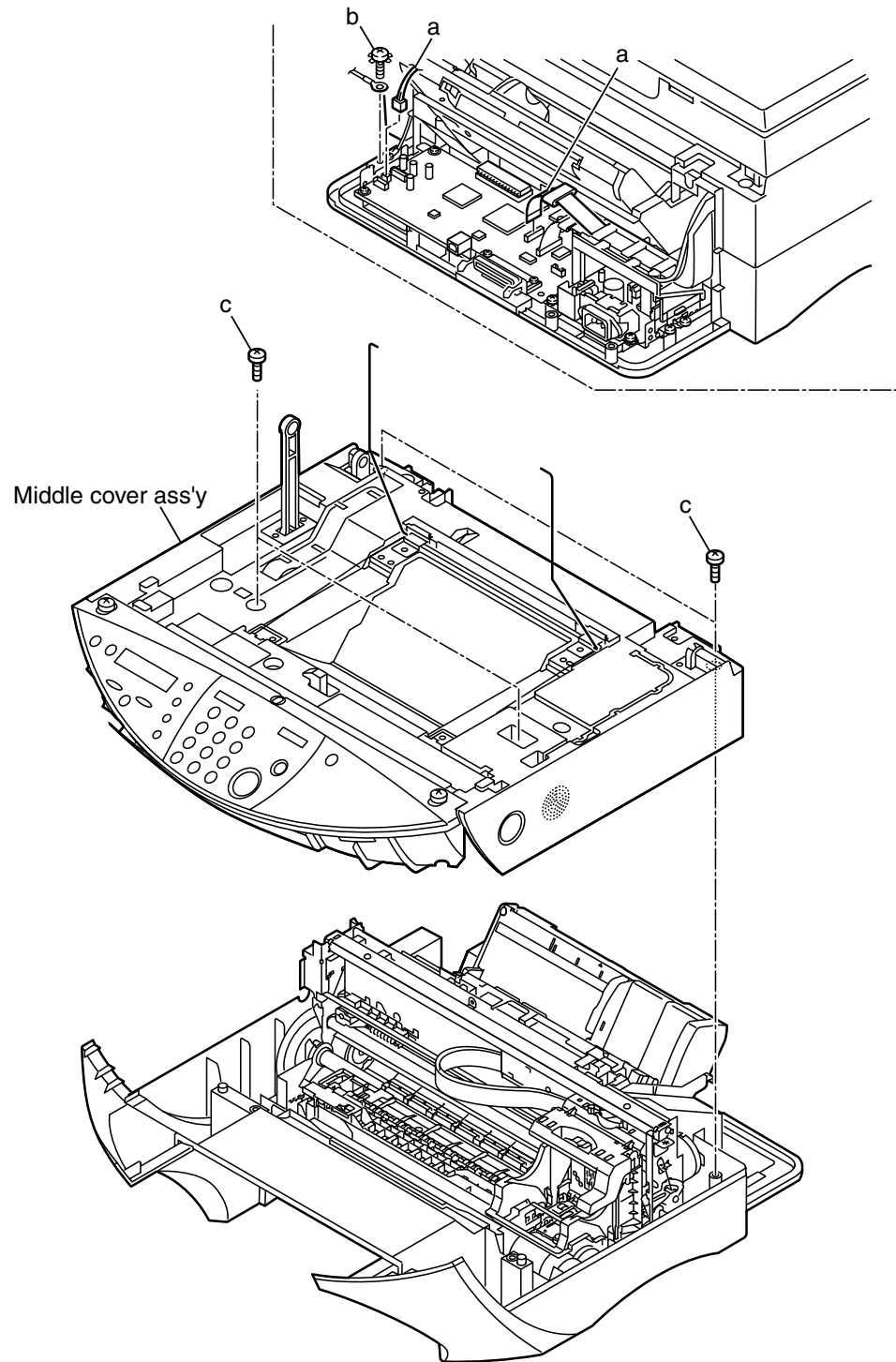


Figure 3-11 Disassembly 5

Disassembly 6. Print & ASF ass'y

- (1) Perform Disassembly 5, and detach the middle cover ass'y.
- (2) Remove the screw (a), and detach the grounding wire.
- (3) Remove the 2 cables (b).
- (4) Remove the 3 screws (c), and detach the Print & ASF ass'y.
- (5) Remove the 2 ink absorbers.

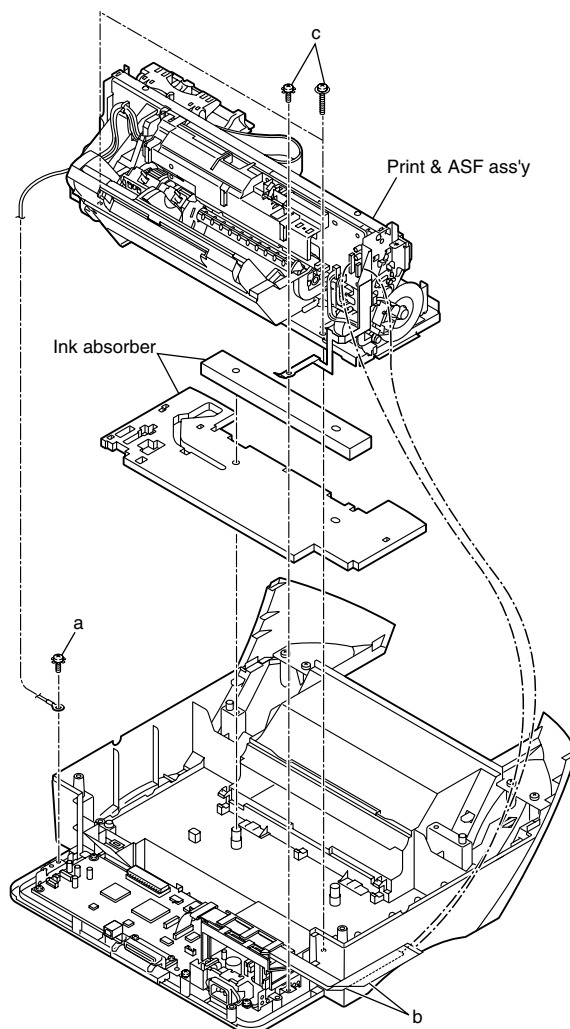


Figure 3-12 Disassembly 6



NOTE

Replacement of waste ink absorbers

The waste ink absorbers are designed to sop up any excess ink ejected during the cleaning operation or during ink squirting for maintenance, in order to maintain the good printing quality of the BJ cartridge. The volume of ink absorbed is counted and these data stored in the EEPROM on the PCNT board. Once the volume is judged to have reached 100%, the message **"CHECK PRINTER"** (error code ##342) will be displayed, and printing will stop, in order to ensure that the volume of ink absorbed does not exceed the allowed limit. To clear this error, you need to replace the waste ink absorbers and reset the waste ink volume counter. Refer to page 4-23, Action for ##342, for details on how to reset the waste ink volume counter.

Disassembly 7. Contact sensor

- (1) Perform Disassembly 3 to remove the flatbed ass'y.
- (2) Remove the 2 screws (a).
- (3) Free the claw (b), and detach the scanner cover. At this time, take care not to drop the document glass.
- (4) Remove 2 spring plates, and detach the document glass.
- (5) Remove the flat cable stopper (c).
- (6) Remove the contact sensor from the contact sensor holder. At this time, take care not to lose the spacer.



Handling the contact sensor

Be careful not to scratch or soil the glass surface of the contact sensor. Any such scratches or dirty marks may lead to image defects, such as vertical streaks, etc., on the scanned image.

Caution when replacing the contact sensor

When replacing the contact sensor, the CS LED light-on duration needs to be adjusted. Refer to page 4-6, 3.1 CS LED Lights-on Duration Adjustment, for details.

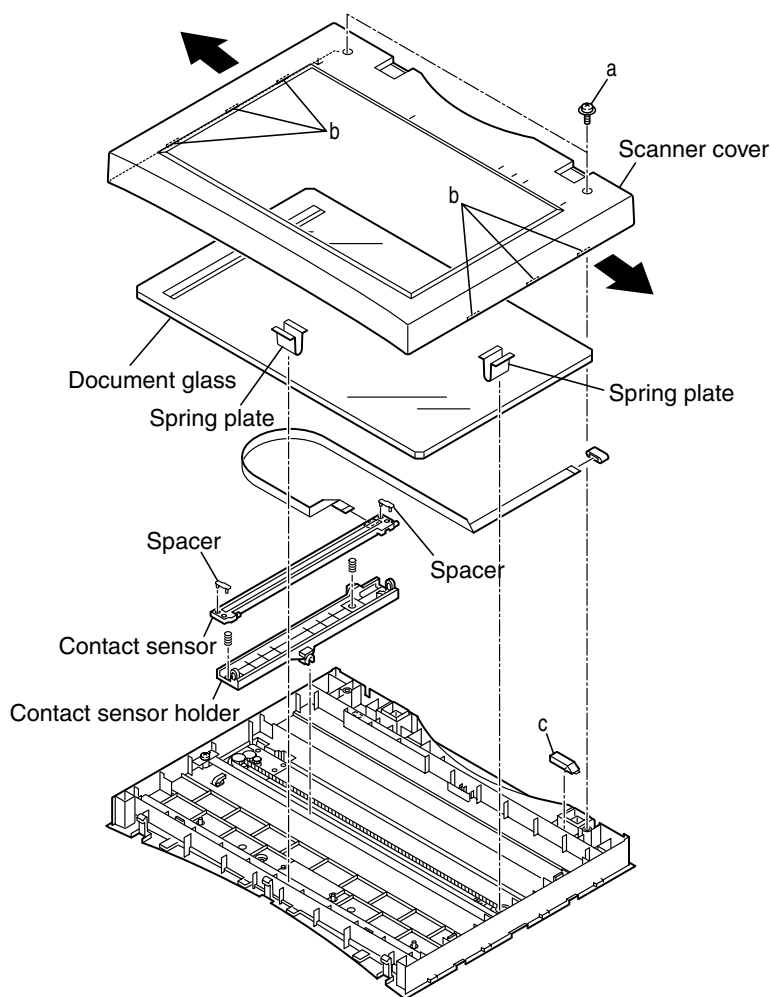


Figure 3-13 Disassembly 7

Disassembly 8. Contact sensor drive motor

- (1) Perform Disassembly 7.
- (2) Remove the harness holder.
- (3) Remove the 2 screws (a), and detach the grounding plate.
- (4) Push the pulley toward the inside, and free the Contact sensor drive belt from the gear.
- (5) Remove the screw (b), and detach the Contact sensor drive motor together with the plate.
- (6) Remove the 2 screws (c), and detach the Contact sensor drive motor from the plate.

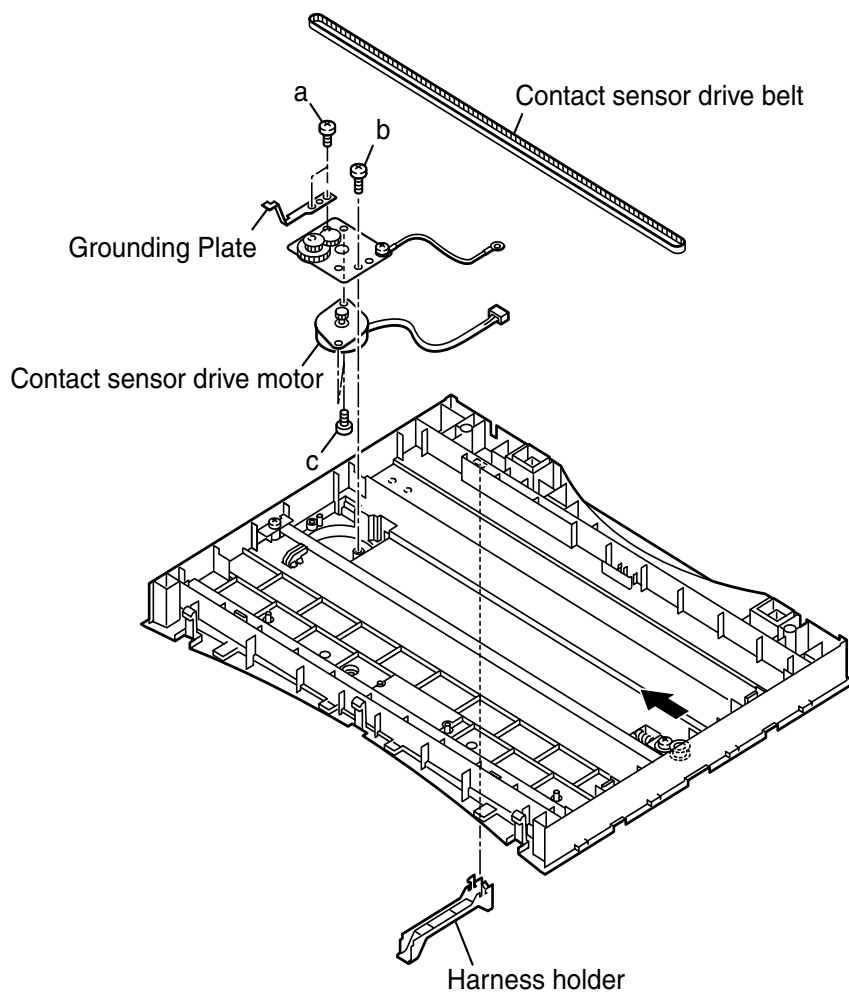


Figure 3-14 Disassembly 8

Disassembly 9. PCNT board

- (1) Perform Disassembly 6 to remove the Print & ASF ass'y.
- (2) Remove the screw (a), and detach the PCNT cover.
- (3) Disconnect all cables from the PCNT board.
- (4) Remove the 3 screws (b), and detach the PCNT board.



When replacing the PCNT board, check to make sure that the PCNT sheet is found. Otherwise, purchase a PCNT sheet (HC1-0031), and attach it before mounting the board to the machine.



NOTE

Attaching the PCNT Sheet

When attaching the PCNT sheet, be sure so that it will be inside of the document edge sensor and the pickup sensor as shown in the figure. Moreover, when mounting the PCNT board after attaching the PCNT sheet, make sure that the PCNT sheet is inside the PCNT cover.

PCNT board replacement

The PCNT board EEPROM is for storing data on the volume of waste ink absorbed and vertical line displacement correction data. When replacing the PCNT, you should confirm the waste ink volume from the system dump list and make a note of it. Then, after you have replaced the board, enter this value and perform vertical line displacement correction.

Disassembly 10. ASF unit

- (1) Perform Disassembly 6 to remove the Print & ASF ass'y.
- (2) Remove the screw (c), and detach the cable guide.
- (3) Remove the 2 screws (d), and detach the ASF unit.

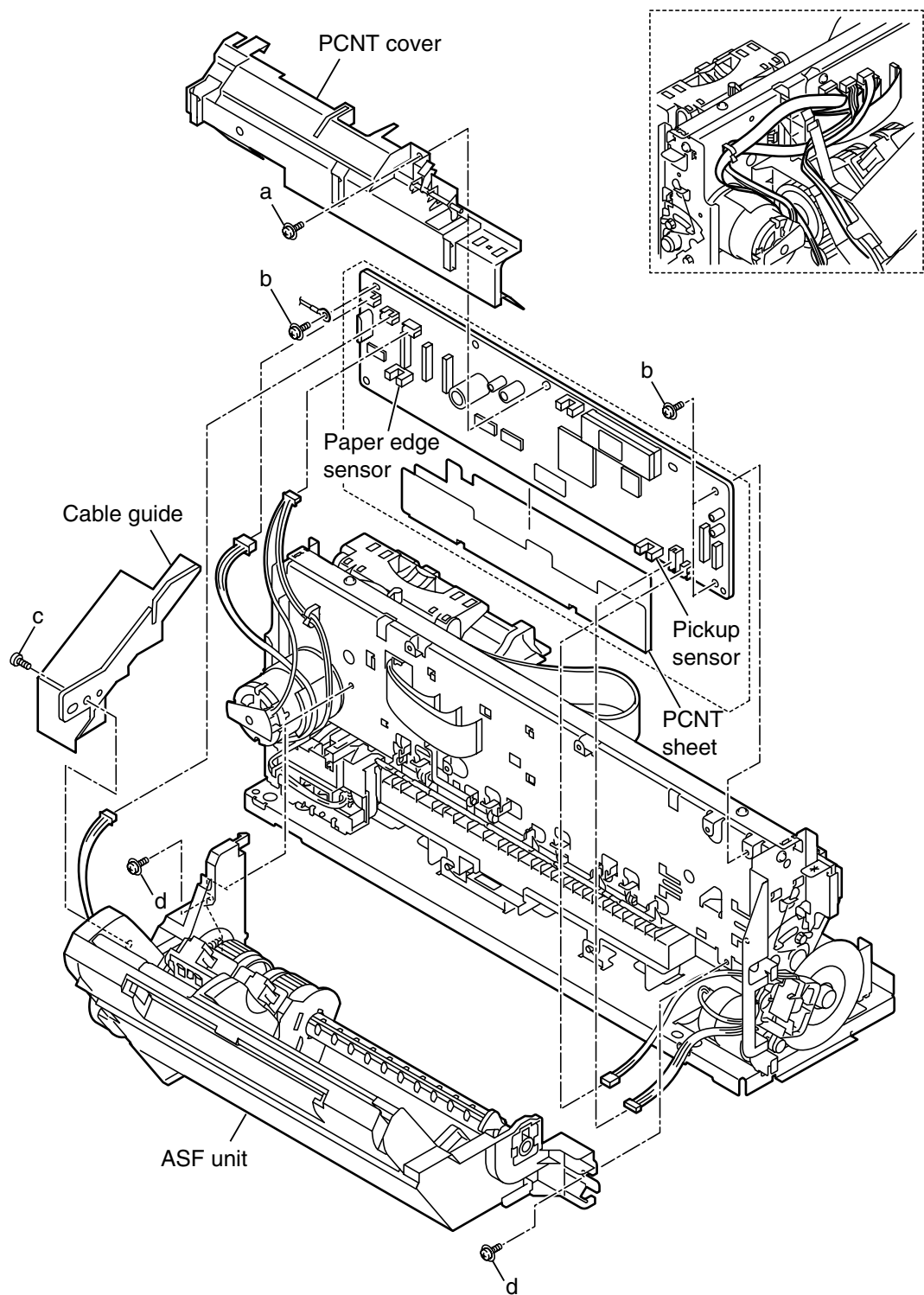


Figure 3-15 Disassembly 9 and Disassembly 10

Disassembly 11. Purge unit

- (1) Perform Disassembly 6 to remove the Print & ASF ass'y.
- (2) Disconnect the cable (a) from the carriage motor.
- (3) Remove the screw (b), and detach the blade cleaner.
- (4) Remove the 2 screws (c), and detach the purge unit.

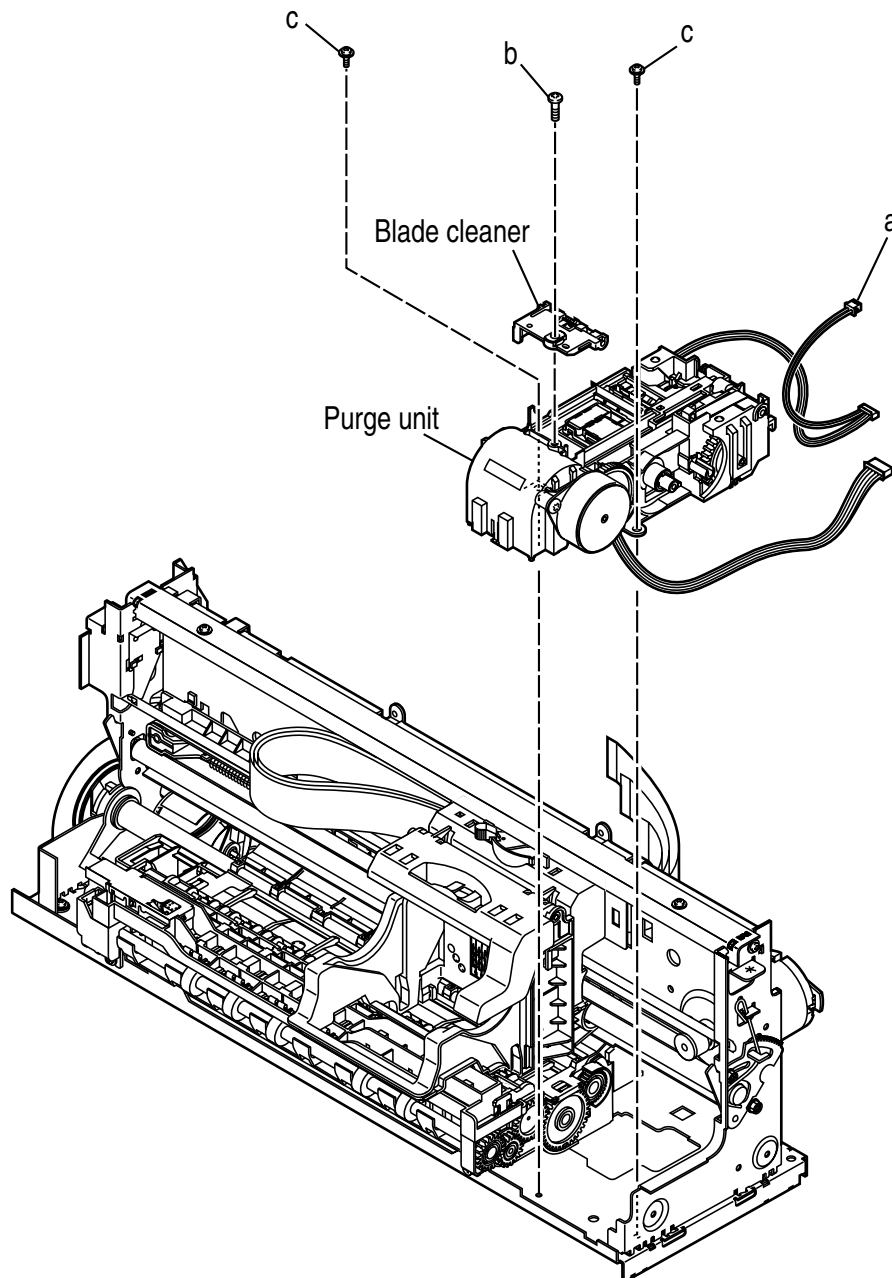


Figure 3-16 Disassembly 11



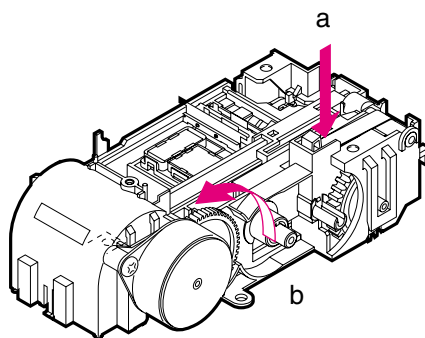
NOTE

Carriage lock release

Normally, when a cartridge is installed on the carriage and the power is turned off, the printer moves the carriage to the capping position to lock it.

When the power is turned on, the carriage lock is normally released. However, if the printer does not operate properly, you can release the carriage lock manually in one of two ways:

- a) On the back of the printer, push down the purge unit's locking pin.
 - b) On the front of the printer, rotate the gear as shown by the arrow in the illustration below so that the locking pin goes down.
-



Purge Unit

Figure 3-17 Carriage Lock Release



Handling the purge unit

Note the following with regard to the purge unit:

(1) Grease soiling the blade

Due to the blade's height, the carriage guide shaft may touch it when the shaft is removed or installed. Grease may soil the blade as a result.

You must not allow any grease or oily substance to adhere to the blade.

(2) Replacing the blade cleaner

When replacing the purge unit, also replace the blade cleaner at the same time.

Since it is soiled by ink, the blade cleaner needs to be replaced.

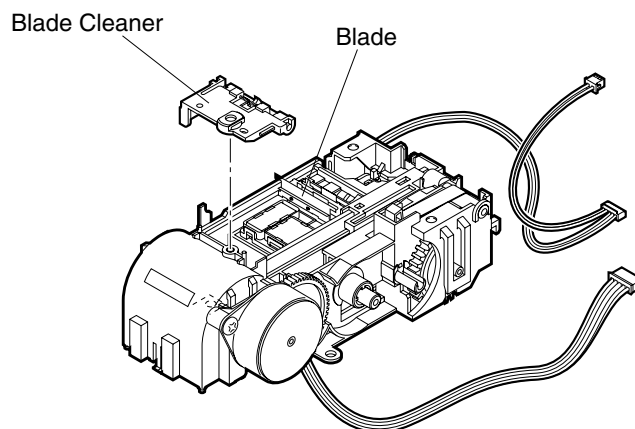


Figure 3-18 Handling the Purge Unit

Disassembly 12. Carriage unit

- (1) Perform steps 1 and 2 of Disassembly 9.
- (2) Disconnect the 3 cables found between the PCNT board (J1, J2, J3) and the carriage unit.
- (3) By referring to the instructions on p. 3, release the carriage lock.
- (4) Remove the 2 screws (a), and detach the carriage guide frame.
- (5) Remove the left/right shaft clip.
- (6) Remove the carriage shaft.
- (7) Remove the cable guide.
- (8) Press the pulley to detach the carriage belt.
- (9) Remove the tension spring and the carriage encoder film.
- (10) Remove carriage unit.

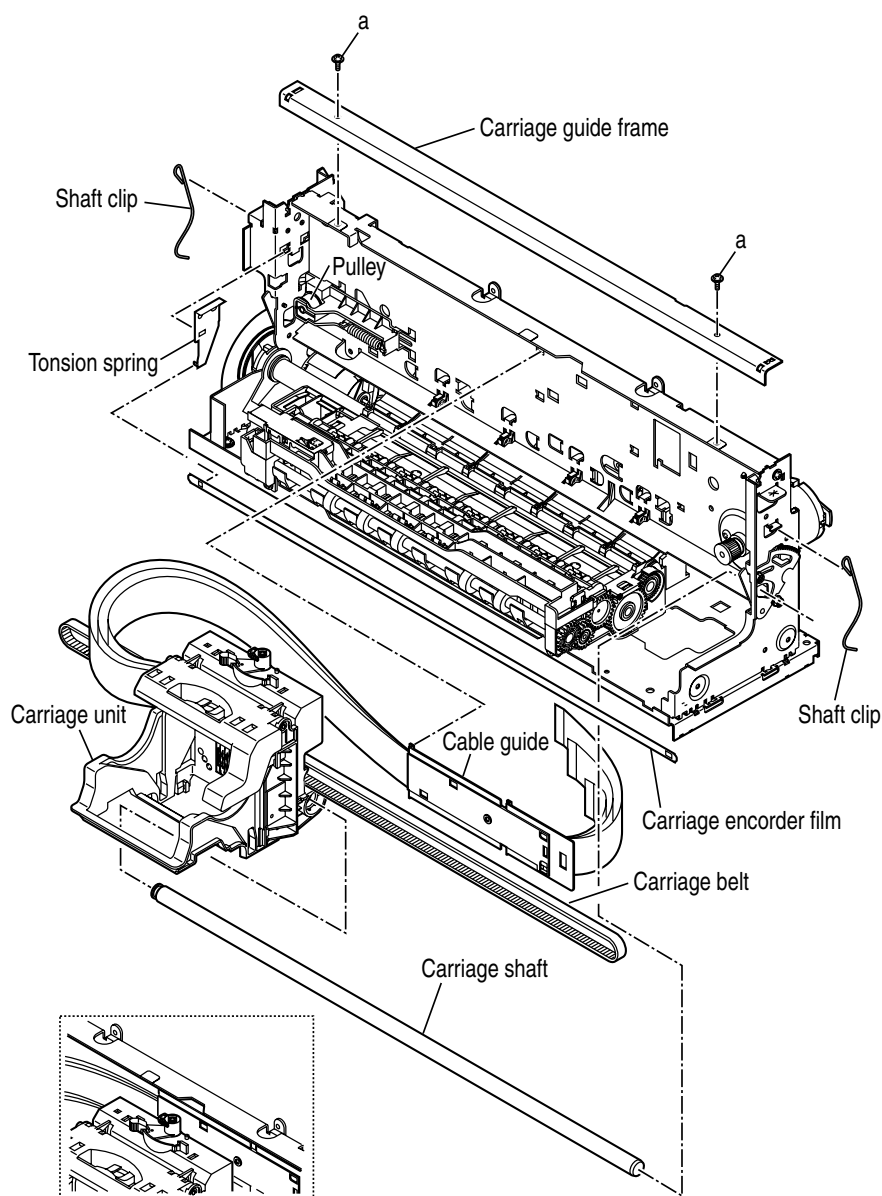


Figure 3-19 Disassembly 12



Installing and removing the carriage encoder film

The carriage encoder film is fixed in place and held taut by the torsion spring. When you install or remove the carriage encoder film, you have to stretch the torsion spring. Be careful not to pull the torsion spring too much in the direction of the arrow. Otherwise, you will not be able to properly install the carriage encoder film the next time.

Therefore, when installing or removing the carriage encoder film, be very careful not to pull the torsion spring too much.

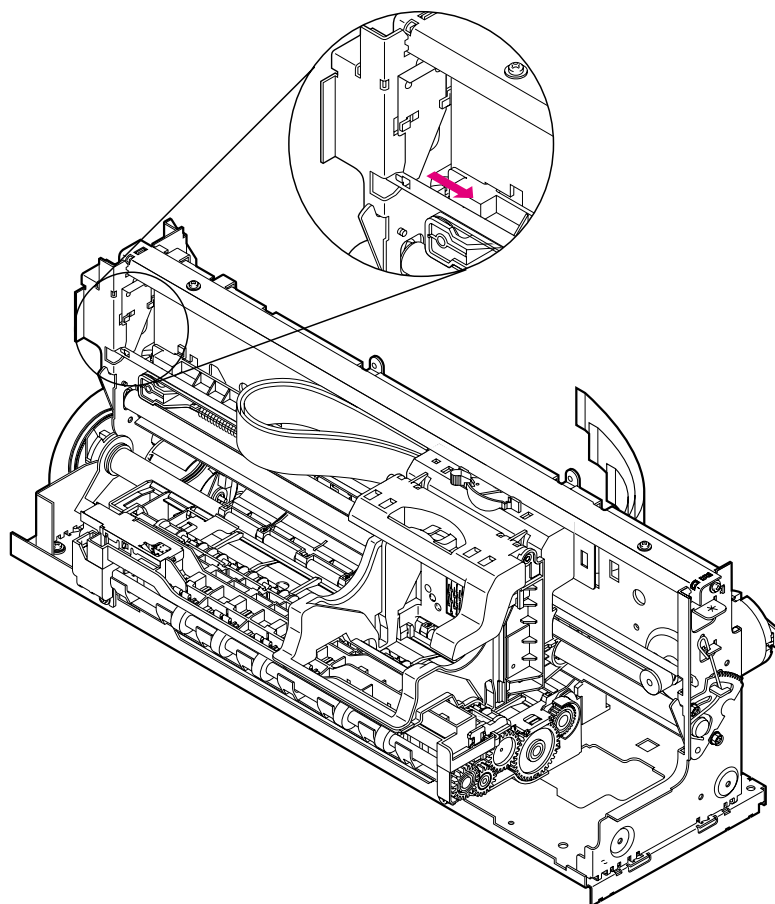


Figure 3-20 Encoder Film



Handling encoder film

- (1) **Be careful not to get any grease on the encoder film (carriage encoder film and paper feed encoder film).**

If grease gets on the encoder film, the film's slits will not be read correctly, resulting in error. If grease gets on the film, use alcohol to wipe it off completely.

- (2) **Do not fold or scratch the encoder film.**

If the film is folded and a white line is created or if a slit is scratched, replace the encoder film.

Disassembly 13. Carriage motor, Timing sensor unit

- (1) Perform Disassembly 10 to remove the ASF unit.
- (2) Disconnect the cable from the carriage motor.
- (3) Remove the 2 screws (a), and detach the carriage motor.
- (4) Disconnect the cable (b) from the paper feed motor and the PCNT board.
- (5) Remove the screw (c), and detach the timing sensor unit.
- (6) Remove the 4 springs (d), and detach the pressure roller.

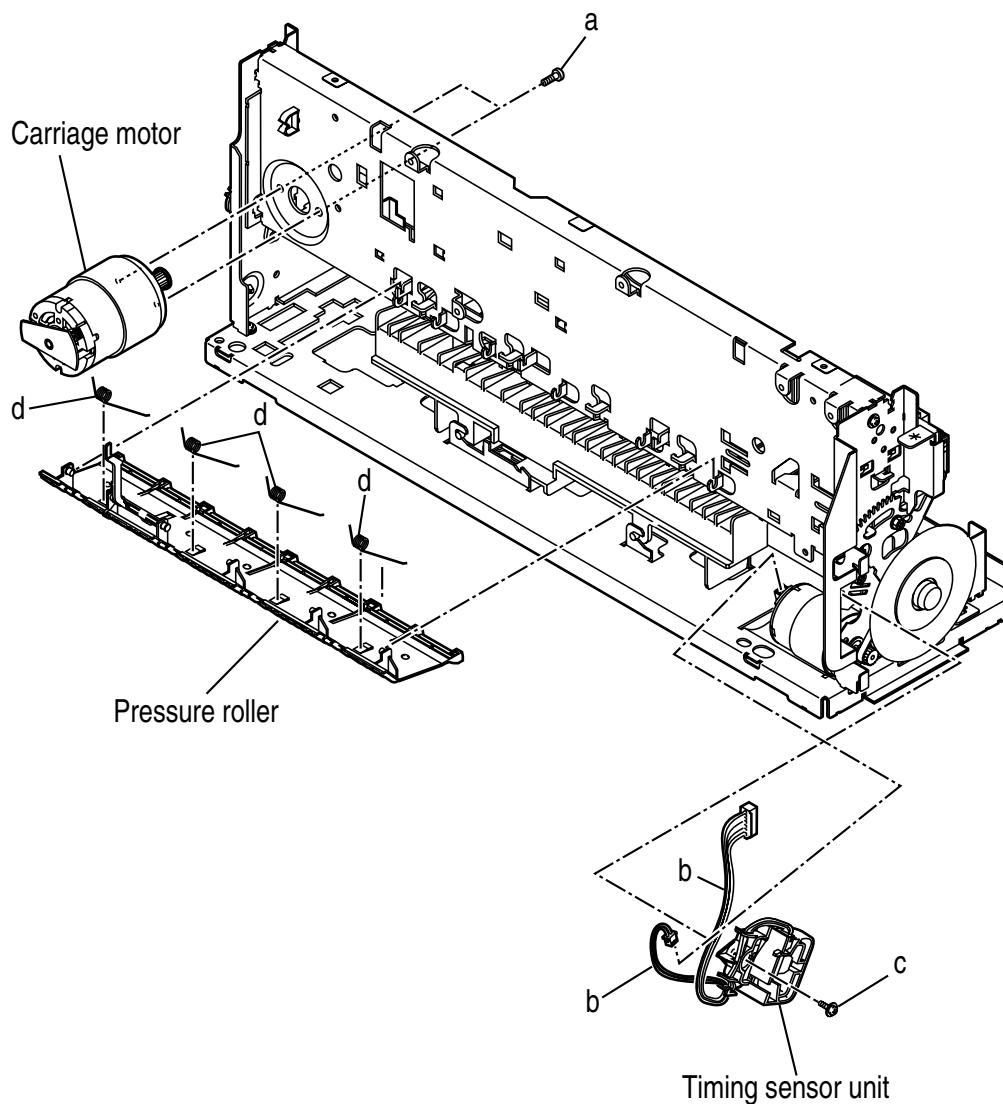


Figure 3-21 Disassembly 13

Disassembly 14. Platen unit

- (1) Perform Disassembly 12.
- (2) Remove the 2 screws (a), and detach the platen unit.
- (3) Free the claw (b), and detach the spur holder assembly.

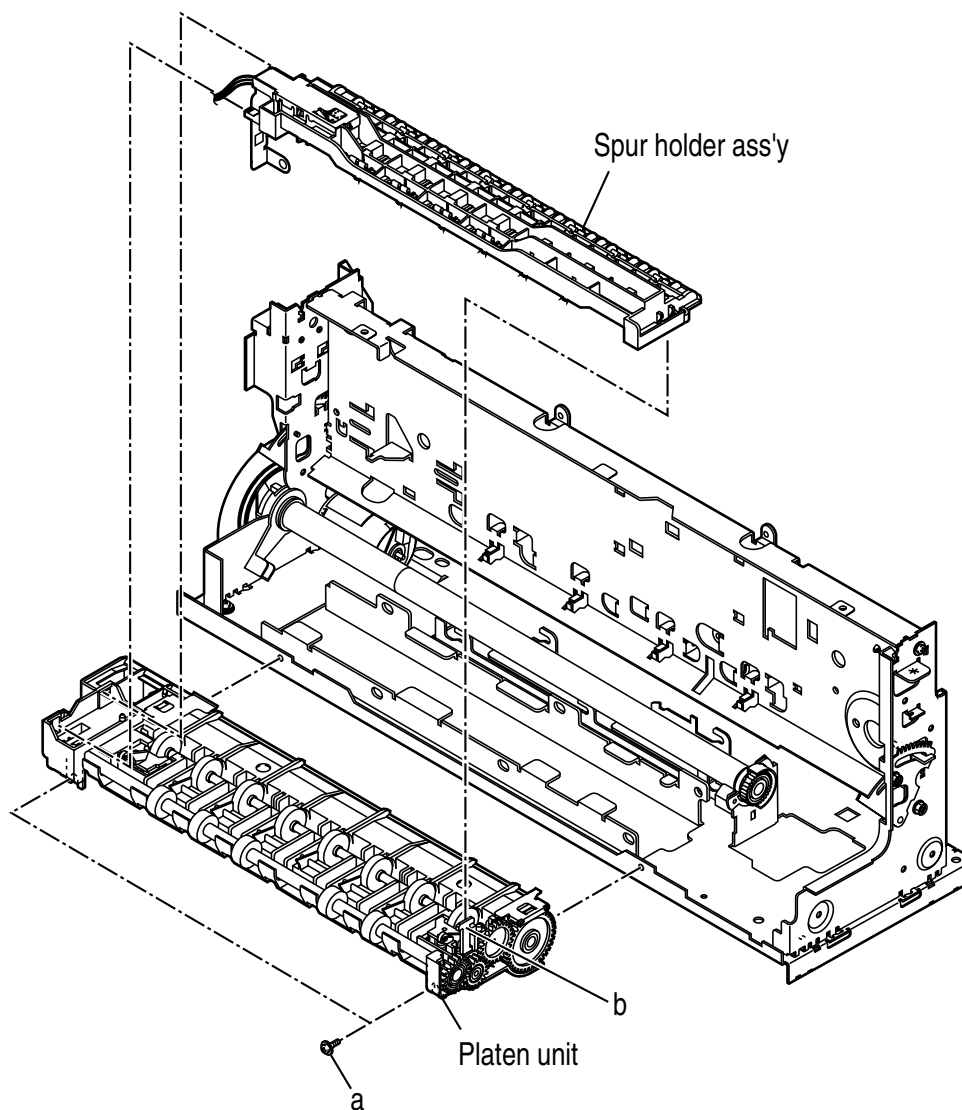


Figure 3-22 Disassembly 14

Disassembly 15. Paper feed roller

- (1) Perform Disassembly 13 to remove the pressure roller.
- (2) Perform Disassembly 14.
- (3) Turn the left/right lever to detach the paper feed roller.

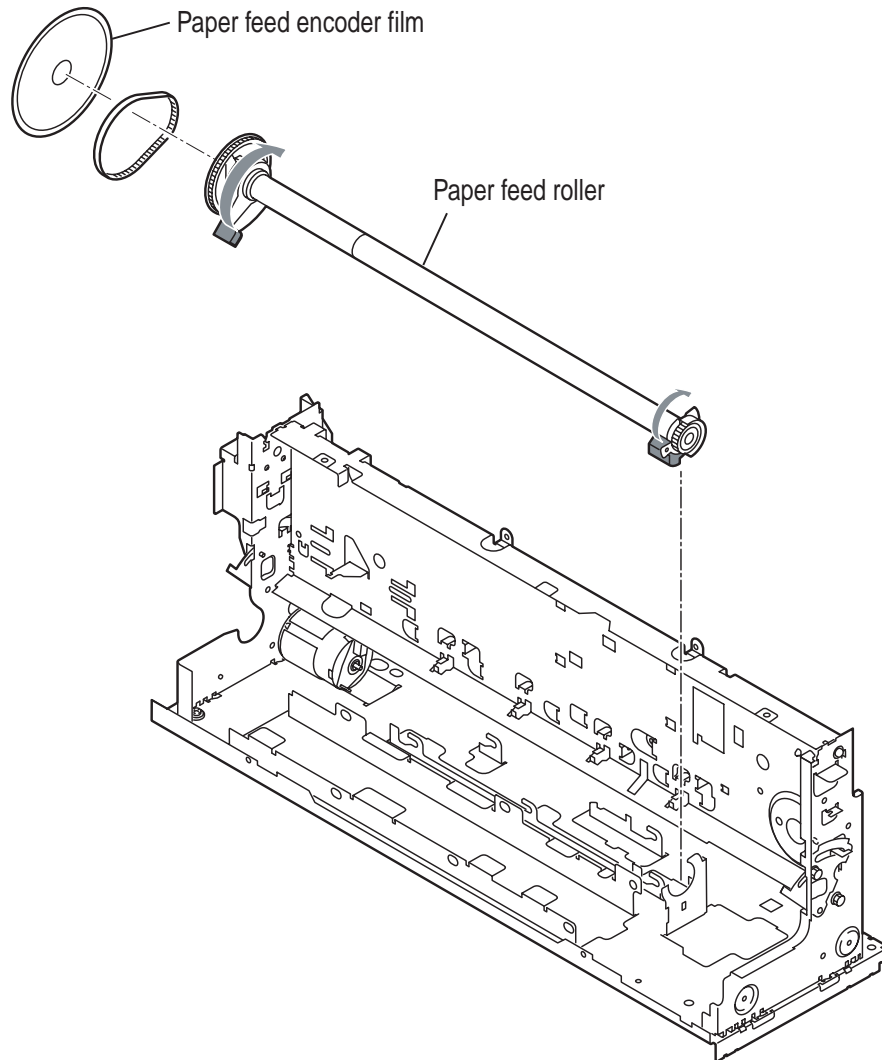


Figure 3-23 Disassembly 15



Handling encoder film

- (1) Be careful not to get any grease on the encoder film (carriage encoder film and paper feed encoder film).**

If grease gets on the encoder film, the film's slits will not be read correctly, resulting in error. If grease gets on the film, use alcohol to wipe it off completely.

- (2) Do not fold or scratch the encoder film.**

If the film is folded and a white line is created or if a slit is scratched, replace the encoder film.

Disassembly 16. Replacing the ROM

To replace the ROM, perform the following:

a) Before Starting the Work

At the end of replacement, you will have to execute 'all clear'. As necessary, print out the following data.

a-1) Image Data Stored in Image memory



The image data stored in image memory will be lost when the power is turned off. Before turning off the power, check to be sure that all images have been printed out.

a-2) User reports

Press the **menu** button, and select 'REPORTS/LIST' using the **</>** button. Then, select the type of report using the **</>** button.

a-3) Service reports

Select service mode, and select 'SERVICE REPORT' using the **</>** button. Then, select that type of list to generate using the **</>** button.

b) Replacing the ROM

b-1) ROM on the SCNT Board

- (1) Disconnect the power cord.
- (2) Put on a wrist strap to prevent static damage.
- (3) Perform Disassembly 2 or 102.
- (4) Remove the ROM from the SCNT board using the ROM removing tool.
- (5) Match the ROM and the IC socket in relation to the cut-offs, and fit the new ROM.
- (6) Put back all parts you may have removed.

b-2) ROM on the PCNT Board

- (1) Disconnect the power cord.
- (2) Put on a wrist strap to prevent static damage.
- (3) Perform Disassembly 9.
- (4) Remove the printer ROM from the PCNT board using a ROM removing tool.
- (5) Match the ROM and the IC socket in relation to the cut-offs, and fit the new ROM.
- (6) Put back all parts you have removed.

c) After Replacement

- (1) If you have replace the ROM because of a fault in a ROM element, you may end the work by turning on the power after assembling the machine.
- (2) If you have replaced the ROM for upgrading that involves changes to the service data, user data, or soft witches, you need to execute 'all clear' (because the memory backed up by the battery retains previous settings). After executing 'all clear', be sure to enter the data you have previously printed out as necessary.



REFERENCE

For a discussion of adjusting the period during which the CS LED remains ON, refer to the descriptions under *3.1 in Chapter 4 (p. 4-6)*.

Disassembly 101. Rear cover, Modem board, NCU board, Modular board

- (1) Remove the 5 screws (a), and detach the rear cover.
- (2) Remove the 2 cables (b) from the SCNT board.
- (3) Remove the 2 screws (c), and detach the NCU holder.
- (4) Remove the cable (d) from the NCU board.
- (5) Remove the 2 screws (e), and detach the modem board from the NCU holder.
- (6) Remove the cable (f) from the NCU board.
- (7) Remove the 2 screws (g), and detach the NCU board from the NCU holder.
- (8) Remove the 2 screws (h), and detach the modular board from the NCU holder.

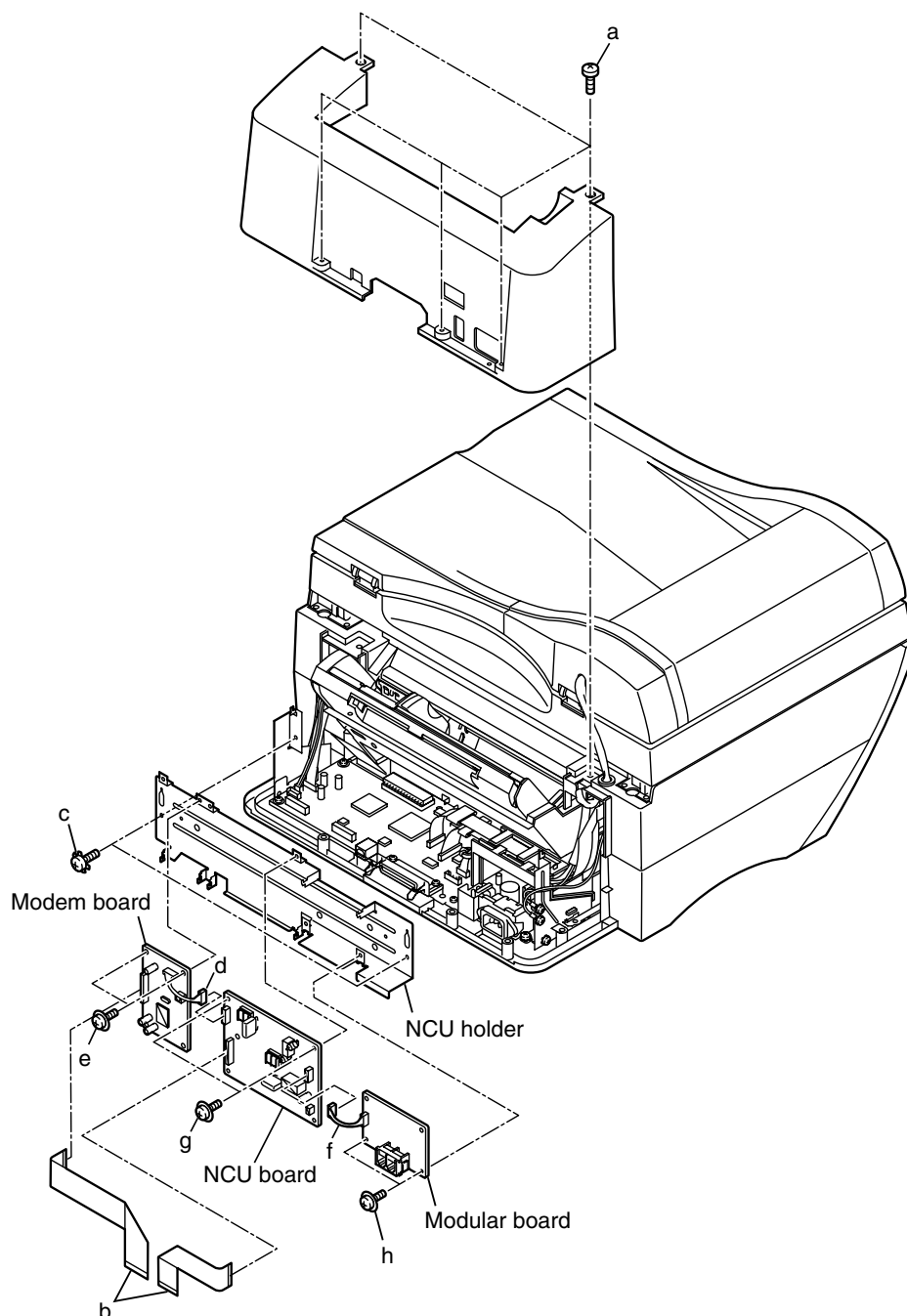


Figure 3-24 Disassembly 101

Disassembly 102. SCNT board, Power supply unit

- (1) Perform Disassembly 101.
- (2) Disconnect all the cables from the SCNT board.
- (3) Remove the 4 screws (a), and detach the 4 grounding wires.
- (4) Remove the 3 screws (b), and detach the SCNT holder.
- (5) Remove the power supply cover.
- (6) Remove the cable (c) from the SCNT board.
- (7) Remove the 5 screws (d), and detach the SCNT board from the SCNT holder.
- (8) Remove the 2 screws (e), and detach the power supply unit from the SCNT holder.

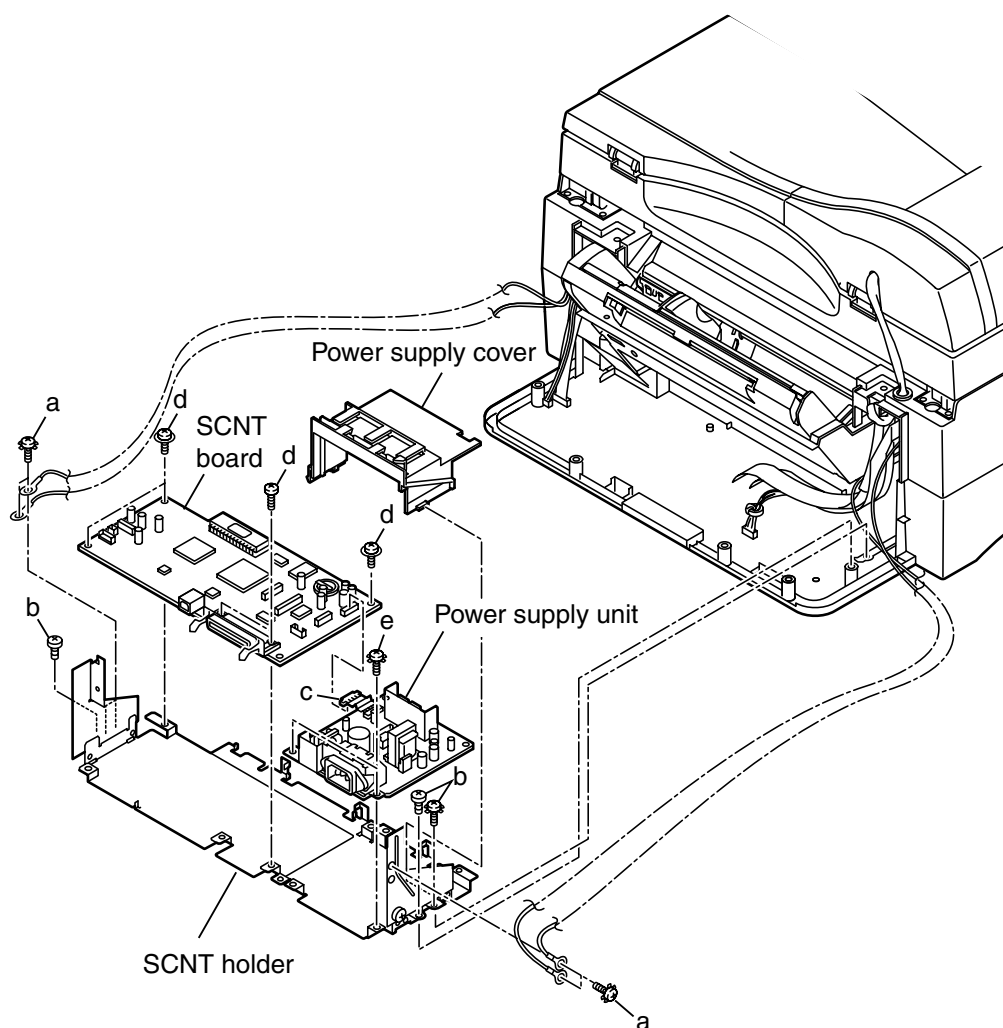


Figure 3-25 Disassembly 102

Disassembly 103. ADF ass'y

- (1) Remove the stop arm from the DF rear cover.
- (2) Remove screw (a) and detach the DF rear cover.
- (3) Remove three cables (b) from the ADF board.
- (4) Remove screw (c) and detach the grounding wire.
- (5) Remove screw (d) and detach the ADF board.
- (6) Lift the ADF ass'y to take it off from the main unit.

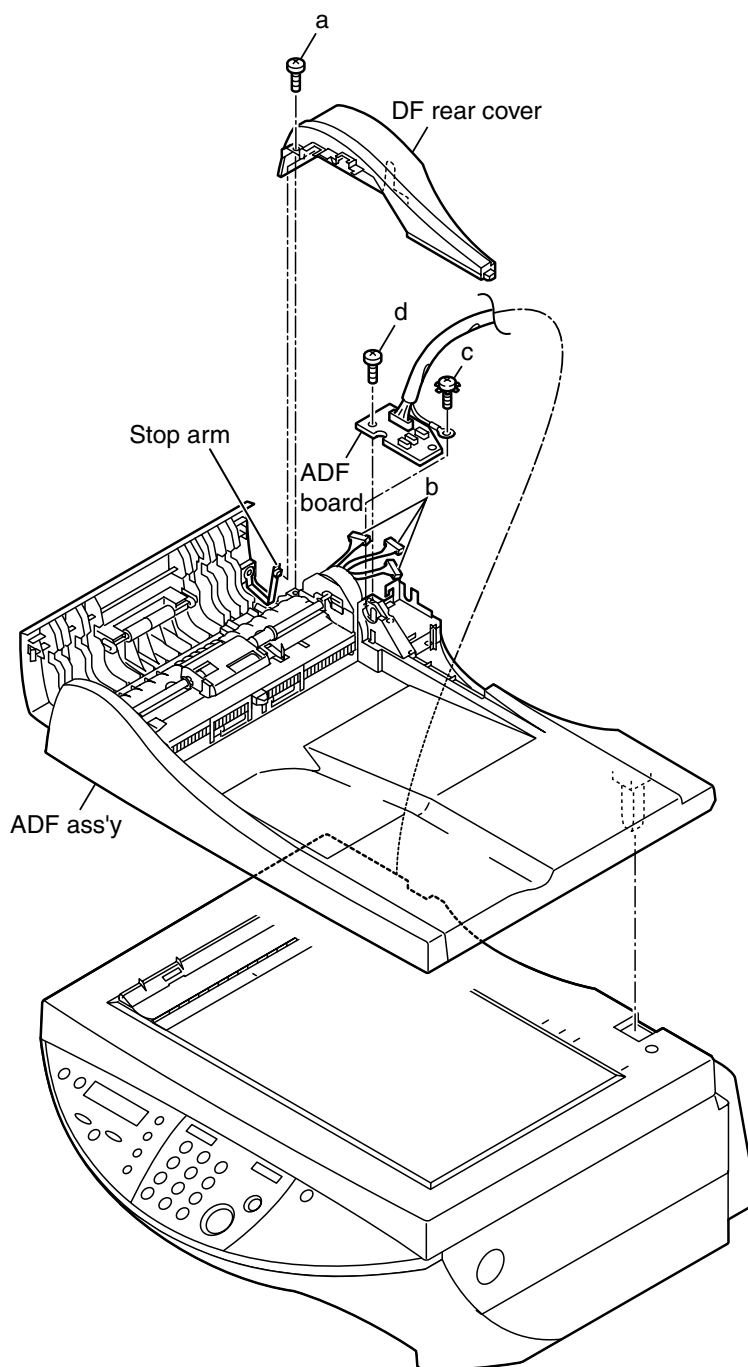


Figure 3-26 Disassembly 103

Disassembly 104. Flatbed unit

- (1) Perform Disassembly 101.
- (2) Perform Disassembly 103.
- (3) Reference Disassembly 3 to the flatbed unit.

Disassembly 105. Operation panel unit

- (1) Perform Disassembly 104.
- (2) Reference Disassembly 4 to the operation panel unit

Disassembly 106. Middle cover unit

- (1) Perform Disassembly 104.
- (2) Reference Disassembly 5 to the middle cover.

Disassembly 107. Printer unit

- (1) Perform Disassembly 106.
- (2) Reference Disassembly 6 to the printer unit.

Disassembly 108. Contact sensor

- (1) Perform Disassembly 104.
- (2) Reference Disassembly 7 to the contact sensor.

Disassembly 109. Flatbed motor

- (1) Perform Disassembly 108.
- (2) Reference Disassembly 8 to the flatbed motor.

Disassembly 110. DF cover, ADF board

- (1) Perform Disassembly 103.
2. Remove the stop arm from the DF rear cover.
3. Remove the screw (a), and detach the DF rear cover.
4. Remove the screw (b).
5. Free the 2 claws (c), and detach the DF front cover.
6. Disconnect the 3 connectors (d) from the ADF board.
7. Remove the screw (e), and detach the grounding wire.
8. Remove the screw (f), and detach the ADF board.

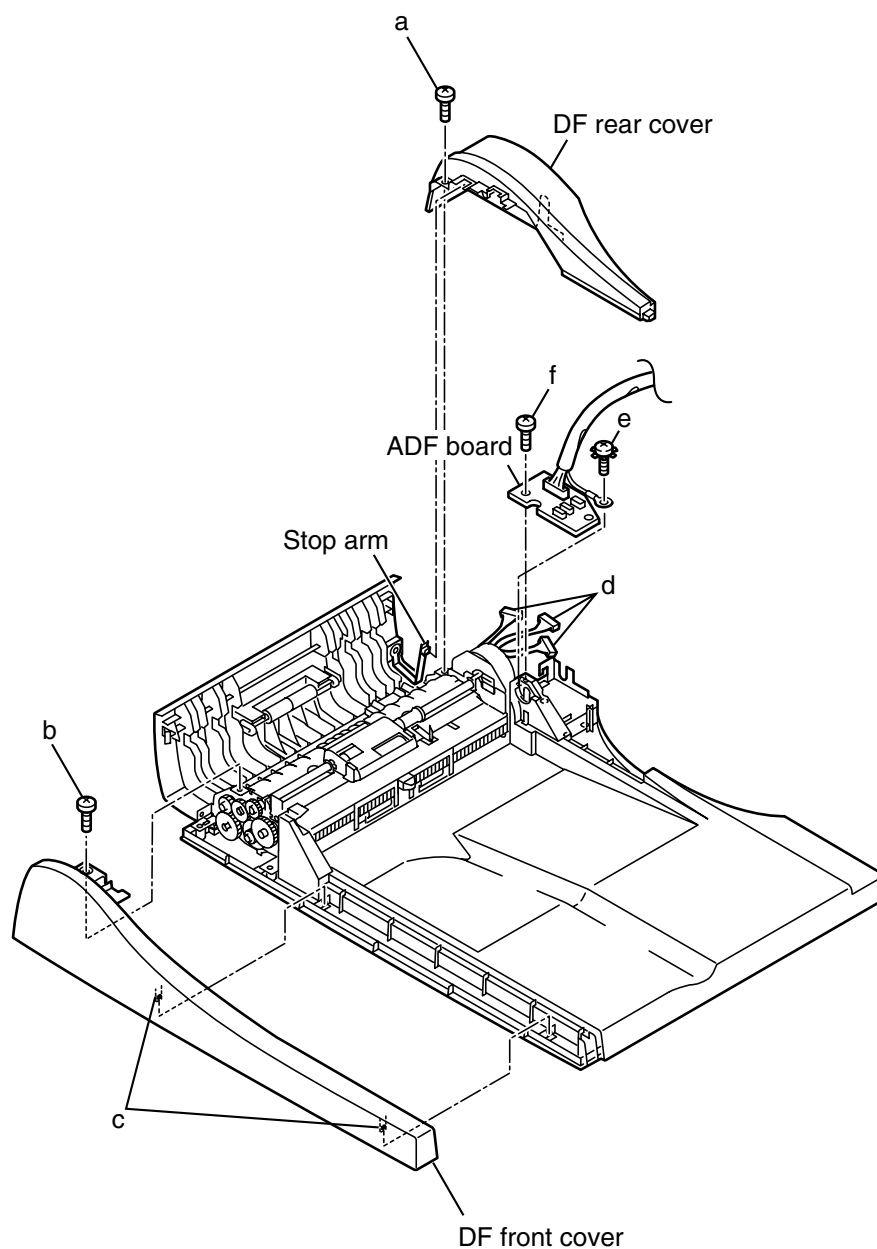


Figure 3-27 Disassembly

Disassembly 111. Document feed motor

- (1) Perform Disassembly 110.
- (2) Remove the 3 screws (a), and detach the motor plate.
- (3) Remove the 2 screws (b), and detach the document feed motor.

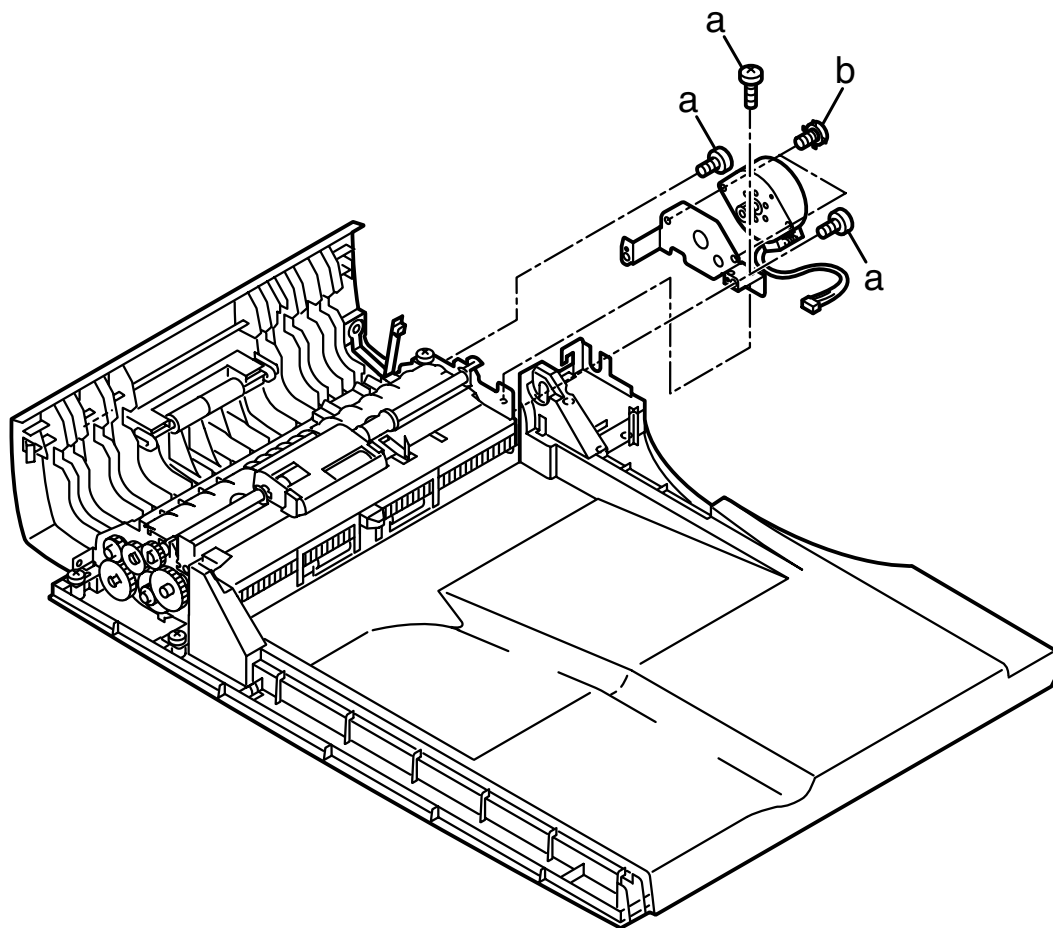


Figure 3-28 Disassembly 111

Disassembly 112. Separation unit

- (1) Detach the 2 separation shaft guides from the shaft.
- (2) Remove the E-ring (a).
- (3) Remove the gear (b).
- (4) Remove the left/right busing (c).
- (5) Remove the separation unit.

Disassembly 113. Separation guide

- (1) Perform Disassembly 112.
- (2) Remove the 2 screws (d), and detach the document guide lower cover.
- (3) Remove the lever.
- (4) Remove the spring (e).
- (5) Remove the separation guide.

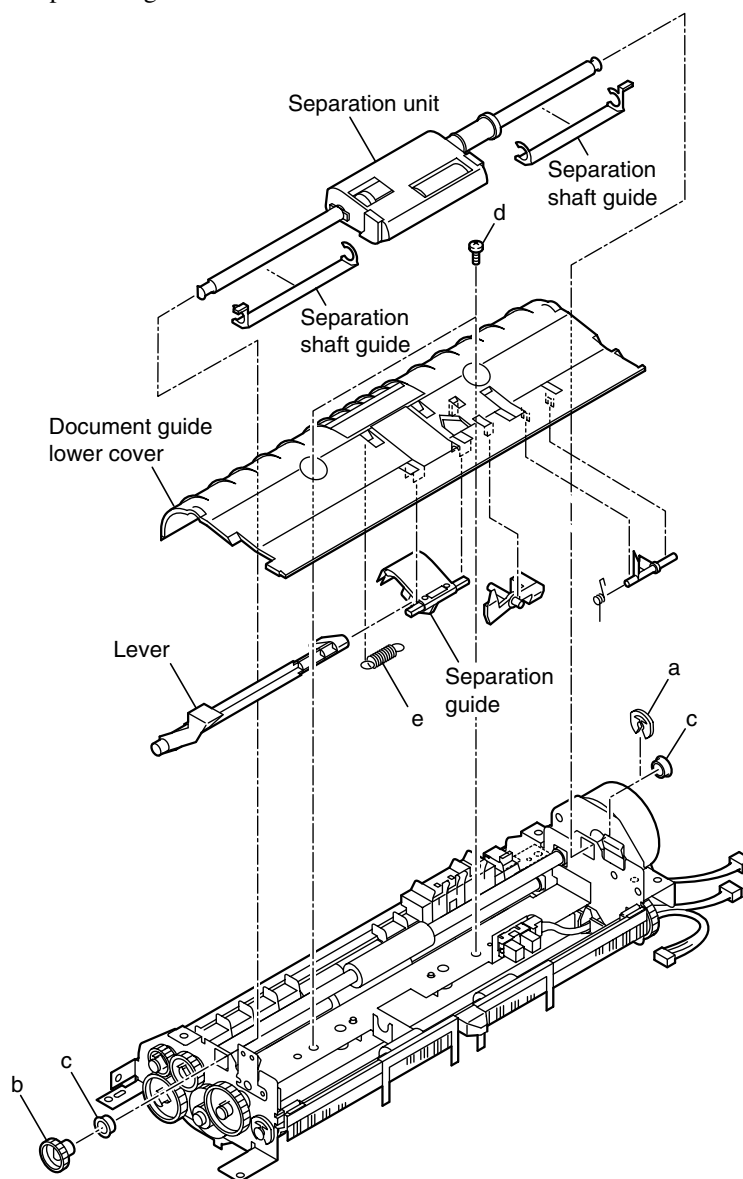


Figure 3-29 Disassembly 112 and Disassembly 113

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Chapter 4

Maintenance and Service

1. MAINTENANCE LIST

1.1 Consumables

Level	Consumable	When
User	INK tank (BCI-3eBK/BCI-3eC /BCI-3eM/BCI-3eY)	When ink in the ink tank being used has run out.
Service Technician	None	

1.2 Cleaning

For the cleaning procedure, see *2. HOW TO CLEAN PARTS* on page 4-4.

Level	Location	When
User	Main unit outer covers	When dirty.
	Pickup/Separation roller	When document pickup/separation performance deteriorates.
	Document U-Turn/ feed/eject roller	When document feed/eject performance deteriorates.
	Separation guide	When document separation performance deteriorates.
	Document guide sheet	When black vertical stripes appear in copied or transmitted images.
	Document glass	When dirty.
	White sheet	When the color or brightness of the copied or transmitted image is not normal.
	Printer platen	When ink adheres to the platen.
Service Technician	None	

1.3 Periodic Inspection

None

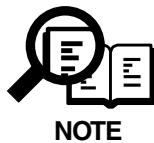
1.4 Periodic Replacement Parts

None

1.5 Adjustment Items

The following adjustments must be made on this fax.
For the adjustment procedure, see 3. ADJUSTMENT on page 4-6.

Item	When
CS LED lights-on duration adjustment	When the SCNT board, or the lithium battery, or the contact sensor are replaced. Also, when the color or brightness of the copy image or transmission image is not normal.
Printhead position adjustment	When the vertical lines shift during Bi-directional printing.



Automatic adjustment of CS LED lights-on duration

The CS LED lights-on duration, which can be adjusted via button operation, is also adjusted automatically in the following cases:

- **When power is turned ON then SRAM data is corrupted**
When this product is shipped, after factory adjustment of the CS LED light-on duration, the exposure control data is stored in SRAM. Because this data is preserved by the Lithium battery even if the power supply is shut off, further adjustment is unnecessary in almost all cases. When the machine's power switch is turned on, the data stored in SRAM is checked for correctness by Checksum, and if any data in SRAM has been lost, adjustment of CS-LED lights-on duration is automatically performed at that time. At first, a check is done for the presence/absence of a document, and if there is no document, exposure control is performed automatically. Exposure control data measured after this is stored in SRAM. When a document is present, scanning is done in an error condition, an abnormal image is output, and the contact sensor is aware that there is an abnormality.

1.6 General Tools

Tool	Use
Phillips screwdriver	Removing/inserting screws
Flat bladed screwdriver	Removing/inserting screws
Precision Phillips screwdriver	Removing/inserting screws
Precision flat bladed screwdriver	Removing plastic tabs
Tweezers	Removing coil spring
Isopropyl alcohol (IPA)	Cleaning the cleaning location
Pliers, needle nose	Driving retaining ring

1.7 Special Tools

Tool	Use	Part No.
Grease (FLOIL G311S)	Apply to specified parts	TKC-0953
Grease (FLOIL KG107A)	Apply to specified parts	QY9-0057
Grease (PG-641)	Apply to specified parts	CK-0562

2. HOW TO CLEAN PARTS

2.1 Main Unit Outer Covers

Wipe with a dry, soft cloth.

2.2 Pickup/Separation Roller (MultiPASS F50 only)

Open the ADF cover, and wipe with a dry, soft cloth.

2.3 Document U-Turn/Feed/Eject Roller (MultiPASS F50 only)

Open the ADF cover, and wipe with a dry, soft cloth.

2.4 Separation Guide (MultiPASS F50 only)

Open the ADF cover, and wipe with a dry, soft cloth.

2.5 Document Guide Sheet (MultiPASS F50 only)

Open the ADF ass'y, and wipe with a dry soft cloth.

2.6 White Sheet (MultiPASS F50 only)

Open the ADF ass'y, and wipe with a dry soft cloth.

2.7 Document Glass

Open the pressure plate or ADF ass'y, and wipe with a dry soft cloth.

2.8 Printer Platen

Open the flatbed ass'y, and wipe with a cloth moistened with a little water.



NOTE

If the parts above are very dirty, wipe with a cloth moistened with IPA (isopropyl alcohol).



Do not use tissue paper. Dust from the tissue paper causes static electricity.

Precautions when Using IPA

When cleaning with IPA, take care to prevent the IPA from splashing high-temperature parts. If IPA splashes high-temperature parts, leave for at least three minutes to allow the IPA to evaporate.

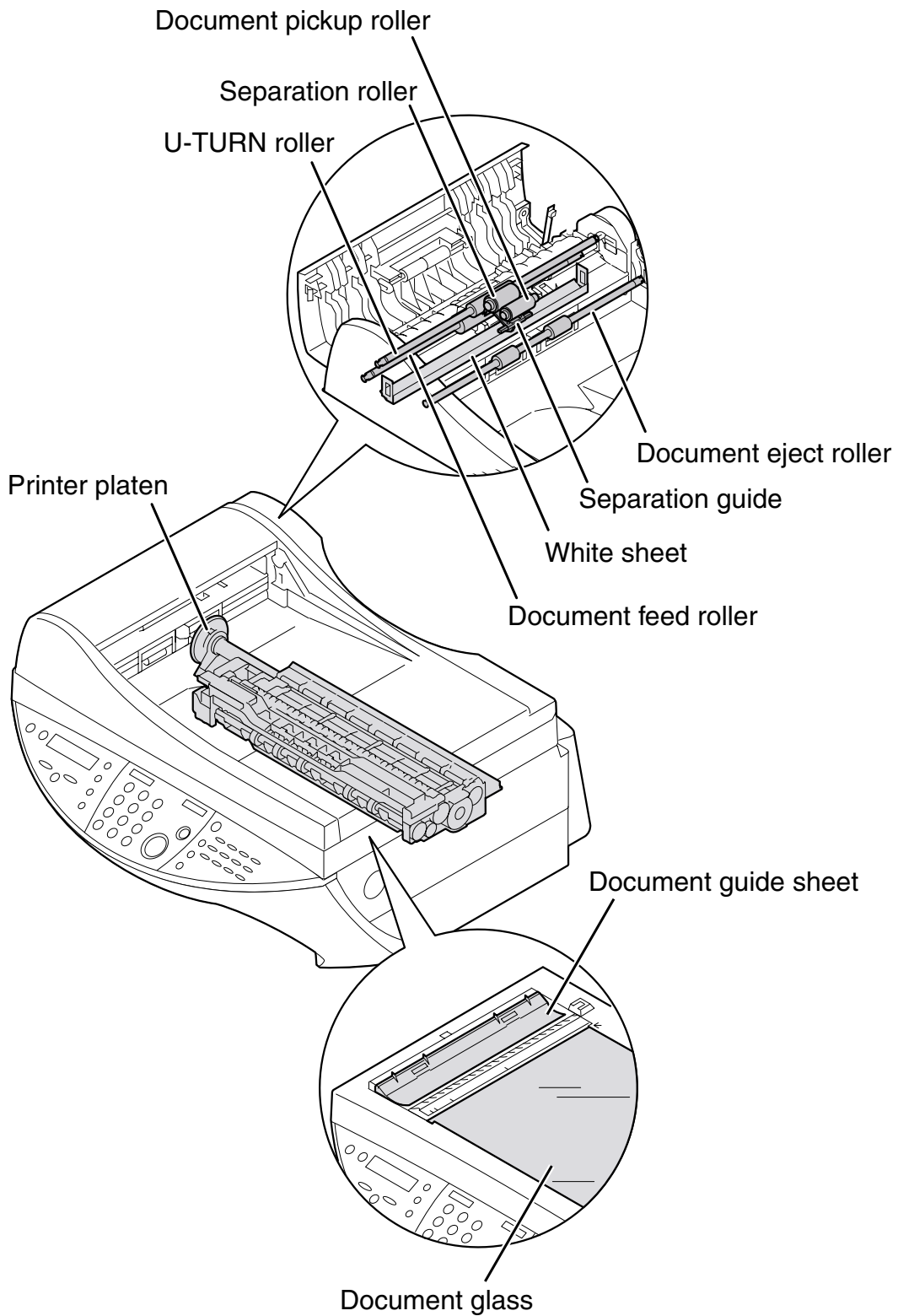


Figure 4-1 Cleaning Location

3. ADJUSTMENT

3.1 CS LED Lights-on Duration Adjustment

a) Overview

This adjustment is used to eliminate uneven scanning which can result from variations in light intensity between individual LED's. Performing the adjustment will therefore have an effect on scanned and copied images.

The adjustment value is registered in an SRAM IC which has lithium battery back-up and will not be lost even if power is turned off. However, the SRAM data can become damaged, for example by battery depletion. In this case, the machine checks the data's validity the next time power is turned ON. If the data is invalid, the adjustment is made automatically. Because the user is automatically prompted, it is almost never necessary to perform this adjustment during normal use. However, if the SCNT board, Contact sensory ass'y, or lithium battery is replaced, be sure to perform this adjustment. Also, if the color or brightness of scanned or copied images is faulty, performing this adjustment may correct the problem.

b) Procedure

- (1) Check that the ADF or pressure plate is closed correctly, then perform the adjustment by following the steps described below.

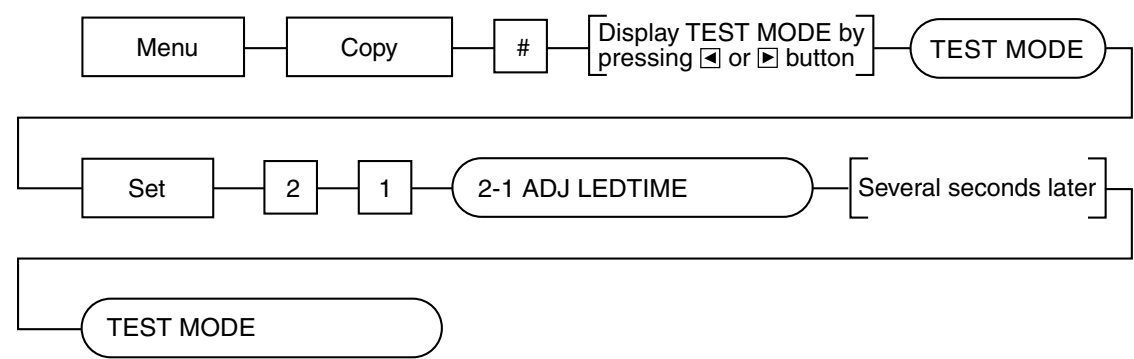


Figure 4-2 CS LED Lights-on Duration Adjustment Operation

- (2) The adjustment procedure is finished when the display reads **TEST MODE**.

3.2 When Adjustment of the Print Head Position is Required

a) Overview

When replacing the print heads, the point of ink ejection may be off, preventing clean characters, depending on the state in which BJ cartridge is installed. In order to eliminate this drift, it is necessary to adjust the head position after attaching the BJ cartridge. Set 2 or more sheets of normal paper sized A4 or LTR on the Auto Sheet Feeder, and perform head position adjustment following the steps in Fig. 4-5.



Figure 4-3 Print Position Adjustment Pattern

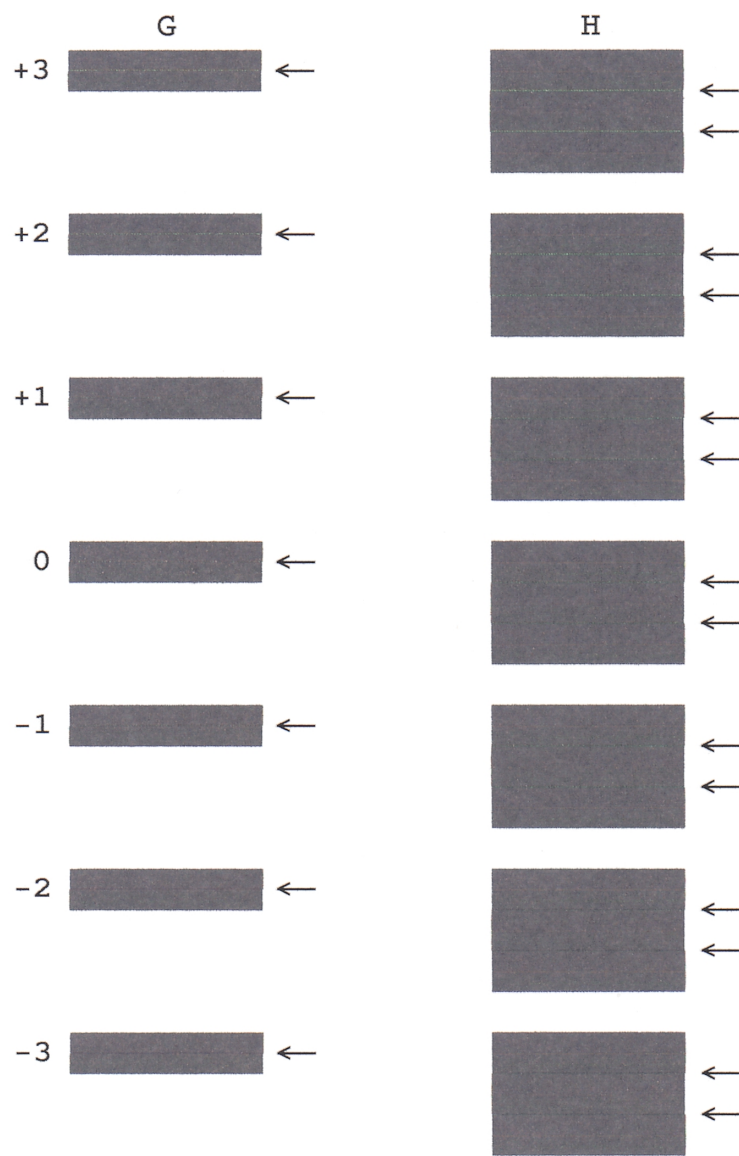


Figure 4-4 Print Stript Adjustment Pattern



Be sure to set A4 or LTR-sized paper in the ASF before printing the head position adjustment pattern. Using printing paper smaller than the printing area of the data when performing the head position adjustment print will contaminate the platen with ink.

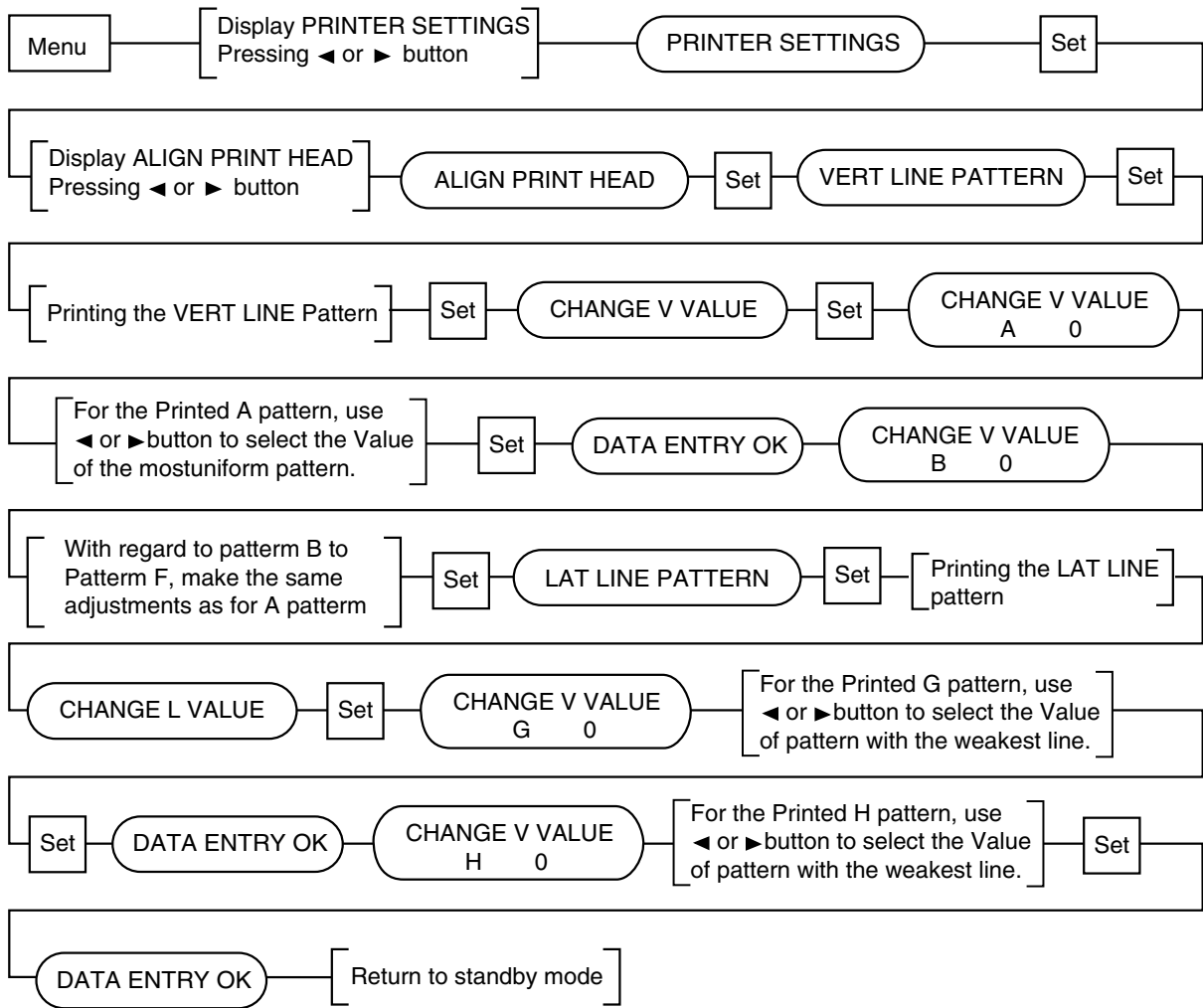


Figure 4-5 Vertical Line Misalignment Correction Procedure

4. TROUBLESHOOTING

4.1 Troubleshooting Index

For troubleshooting, use the troubleshooting index below to investigate the cause of the problem and refer to the specified page for countermeasures.

Problem

- **Errors shown on the display (Evaluation criteria: Look at the unit in question.)**

- The error message can be checked. *Page 4-12.*
- The error code can be checked. *Page 4-17.*

- **General errors** *Page 4-25.*

- The unit does not power on.
- The display looks abnormal.
- The buttons do not work.
- No sound from the speaker

- **Printing problem (Evaluation criteria: Test printing is no good.)**

- The paper is not fed properly. *Page 4-26.*

The paper feed motor does not run.

The paper is not picked up from the auto sheet feeder.

- The printing operation is abnormal. *Page 4-26.*

Nothing is printed.

The carriage motor does not run.

- Printing quality error *Page 4-27.*

(Evaluation criteria: Look at the printing result.)

The printer does not at all.

Printing stop midway.

Certain colors are not printed.

Blotches appear.

Blank ink appear.

- **Scanning problem (Evaluation criteria: Test printing is good, but the copied image is no good.)**

- The document is not fed. *Page 4-28.*
 - The document feed motor does not run.
 - The document slips against the rollers.
 - The document does not separate.
 - Faulty scanner unit's sensors
- The scanning image is abnormal. *Page 4-29.*
 - Nothing is printed.
 - The image has vertical stripes.
 - The half-tone image contains black dots.
 - The color or brightness of the scanned image is not normal.

- **Processing communication problems.** *Page 4-30.*

- Initial identification of problems.
- Procedures for processing communication problems.

4.2 Errors Shown on the Display

4.2.1 User error message

Look for the applicable error message and execute the appropriate countermeasures.

"BUSY/NO SIGNAL " (#005/#018)

- | | |
|------------------|--|
| Cause: | The receiving fax did not answer within 55 seconds. (T1 timer over) |
| Solution: | Contact the other party and have them check their fax. You can try to send the document manually. For an overseas call, add pauses to the registered number. |
| Cause: | The touch tone/rotary pulse setting on your fax is incorrect. |
| Solution: | Set your fax to the setting that matches your telephone line. |
| Cause: | The other party is not using a G3 machine. |
| Solution: | Contact the other party and have them send or receive the document using a G3 machine. |
| Cause: | The other party's fax is not working. |
| Solution: | Contact the other party and have them check their fax. |
| Cause: | The telephone number you dialed is busy. |
| Solution: | Try sending the document at a later time. |

"C INK EMPTY"

- | | |
|------------------|--|
| Cause: | The Cyan BJ tank in the BJ cartridge is empty. |
| Solution: | Replace the Cyan BJ tank. |

"CARTRIDGE JAMMED"

Printing position correction failed

Cause: Carriage movement prevented by one of the following.

Damaged shaft.

Parts deformed. (Carriage or guide frame)

Insufficient grease.

Countermeasure: Replace the shaft.

Replace the deformed parts.

Apply more grease.

Cause: Bi-directional print displacement correction failed because the carriage motor is out of step, or some similar reason.

Countermeasure: Replace the carriage motor.

Home position error

Cause: Foreign body in carriage section.

Countermeasure: Open flatbed ass'y, and remove foreign body.

Cause: Loose carriage belt.

Countermeasure: Replace carriage belt.

Cause: Guide frame home position detection tabs is damaged or bent parts.

Countermeasure: Replace the damaged or bent parts.

Cause: Carriage motor does not work.

Countermeasure: (1) Switch power OFF/ON.

(2) Replace carriage motor.

Cause: The position of the carriage cannot be detected (due to smears on the carriage encoder film or PCNT board failure).

Countermeasure: (1) Switch power off/on.

(2) Wipe the carriage encoder film with a cloth soaked with alcohol.

(3) Replace the carriage encoder film.

(4) Replace the PCNT board.



NOTE

This error message means the same as service error codes ##338 and ##340. When this error occurs in this model, it is not treated as a service error, but as a user error, and the error message is displayed.

"CHANGE CARTRIDGE"

- | | |
|------------------|--|
| Cause: | The flatbed ass'y is open and the cartridge holder is moving to the center of the machine. |
| Solution: | Wait until the cartridge holder stops, then replace the BJ cartridge or tanks. |

"CHECK PAPER SIZE"

- | | |
|------------------|---|
| Cause: | The size of the paper loaded in the paper cassette is different from the paper size set by user data. |
| Solution: | Select a correct paper size by pressing Paper select button. |

"CHECK PRINTER" (##332~##337, ##345, ##346 and ##348)

- | | |
|------------------|---|
| Cause: | The printer's internal unit has malfunctioned. |
| Solution: | (1) Remove the jammed paper. (Check the paper end sensor is OFF.)
(2) Press Resume button.
(3) Reinstall the Cartridge.
(4) Turn the power off and on.
(5) Set the service data #1 SSSW SW01 bit 0 to "1" and check the service code.
Refer to the countermeasures for that error code. |

"CLEAR ADF" (MultiPASS F50 only)

- | | |
|-------------------|--|
| Cause: | A paper jam occurred in the ADF. |
| Solutions: | Remove the document you are trying to copy and send and start again. |

"CLEAR PAPER JAM" (#009)

- | | |
|------------------|---|
| Cause: | Paper jam. |
| Solution: | Clear the paper jam and press the Resume button. |

"DATA ERROR"

- | | |
|-------------------|--|
| Cause: | The registration data in the SRAM was destroyed and a checksum error occurred due to a dead lithium battery or SRAM failure. |
| Solutions: | (1) Press the Set button, and turn the power off and on again.
(2) Replace the lithium battery.
(3) Replace the SCNT board. |

"DOC. TOO LONG" (#003)

- | | |
|------------------|--|
| Cause: | The document is longer than 39.4"(1m). |
| Solution: | Use a copy machine to make a reduced copy of the document. Then send again. |
| Cause: | It took more than 32 minutes to send or copy a document. It took more than 32 minutes to receive a document. |
| Solution: | Divide the document and send or copy each part separately. Contact the other party. Have them divide the document and send each part separately. |

"HANG UP PHONE"

Cause:	The handset or the extension telephone is off the hook.
Solution:	Put the handset or the extension telephone back on the hook.

"K INK EMPTY"

Cause:	The Black BJ tank in the BJ cartridge is empty.
Solution:	Replace the Black BJ tank.

"LOAD PAPER" (#009)

Cause:	The fax is out of paper.
Solution:	Add more paper to the paper cassette. Make sure the stack is below the limit mark and press the Start or Resume button.

"M INK EMPTY"

Cause:	The Mazenta BJ tank in the BJ cartridge is empty.
Solution:	Replace the Mazenta BJ tank.

"MEMORY FULL" (#037) (MultiPASS F50 only)

Cause:	The fax's memory is full because it has received too many documents.
Solution:	(1) Print out any documents which are stored in memory. Then start the operation again. (2) If the memory contains any facsimiles you don't need, delete them. (3) You cannot receive a fax was scanned with fine graphic images.
Cause:	The fax's memory is full because you tried to send too many pages at once.
Solution:	Divide the document and send each part separately.

"NO ANSWER" (#005)

Cause:	The receiving fax machine does not answer.
Solution:	Make sure you dialed the correct number. Try again later.

"NO RX PAPER" (#012)

Cause:	The receiving fax machine declares no paper in DIS, or its memory is full.
Solution:	Contact the other party, and ask them to put paper in their machine, or to clear their fax machine's memory.

"NO TEL #" (#022)

Cause:	The button you pressed has no number registered for One-Touch Speed Dialing, Coded Speed Dialing, or Group Dialing.
Solution:	Print a list of registered numbers and make any corrections needed, then try again.

"NOT AVAILABLE" (#025)

Cause:	One-touch or coded speed dial already registered.
Solution:	Check the contents of the one-touch or coded speed dialling registration, then try again.

"PUT IN CARTRIDGE"

-
- | | |
|------------------|--------------------------------------|
| Cause: | The BJ cartridge is not set. |
| Solution: | Set the BJ cartridge. |
| Cause: | The BJ cartridge is set incorrectly. |
| Solution: | Set the BJ cartridge correctly. |

"START AGAIN"

-
- | | |
|------------------|---|
| Cause: | An error occurred on the phone line or in the system. |
| Solution: | Start the procedure again from the beginning. |

"TRY AGAIN IN B/W" (#085)

-
- | | |
|------------------|--|
| Cause: | You tried faxing a color document to a machine that does not support color faxing. |
| Solution: | (1) Try sending again in black & white.
(2) Check the received fax machine's setting for color faxing is available. |

"WAIT COOLING"

-
- | | |
|------------------|------------------------------------|
| Cause: | The BJ cartridge is hot. |
| Solution: | Wait until the message disappears. |

"Y INK EMPTY"

-
- | | |
|------------------|--|
| Cause: | The Yellow BJ tank in the BJ cartridge is empty. |
| Solution: | Replace the Yellow BJ tank. |

4.2.2 Error codes

a) Service error code output

When service data #1 SSSW SW01 bit 0 is set to "1", then service error codes are printed on the activity management reports, reception result reports and error transmission reports, when communication ends in an error. Also, the following is displayed, when an error occurs.

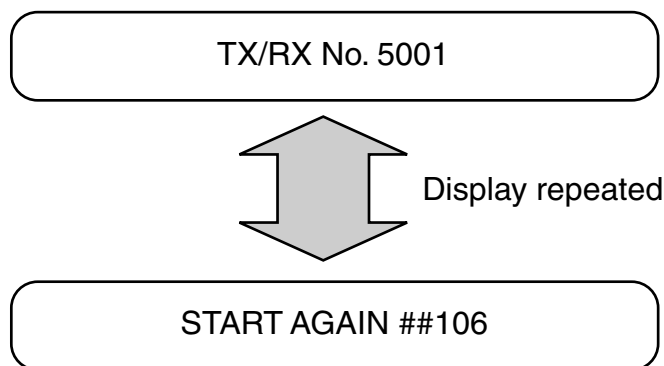


Figure 4-6 Service Error Code Display

b) Error code countermeasures

The following item c) lists all the error codes that the product can display. As for the causes and countermeasures, only the error codes which are newly incorporated in the unit a remedies unique to the product are included in the item d). For the causes and countermeasures of other error codes, refer to the separate *G3 Facsimile Error Code Service Hand Book (Rev. 1)*.

- **Increase the transmission level**

Set service data #2 MENU Parameter No.07 to 0 (dBm).

- **Decrease the transmission level**

Set service data #2 MENU Parameter No.07 to -15 (dBm).

- **Echo measures**

Change the following bit switches of service data #1 SSSW SW03.

Bit 4:1 Ignore the first DIS signal sent by the other fax machine.

0 Do not ignore the first DIS signal sent by the other fax machine.

Bit 5:1 Transmit a tonal signal (1850 or 1650 Hz) when the other fax machine sends a DIS signal.

0 Do not transmit a tonal signal when the other fax machine sends a DIS signal.

Bit 6:1 Transmit a 1650-Hz tonal signal when bit 5 is 1.

0 Transmit a 1850-Hz tonal signal when bit 5 is 1.

Bit 7:1 Transmit a tonal signal before sending a CED signal.

0 Do not transmit a tonal signal before sending a CED signal.

- **EPT (Echo Protect Tone)**

Change service data #1 SSSW SW03 bit 1.

Bit 1:1 Transmit an echo protect tone.

0 Not transmit an echo protect tone.

- **Adjust NL equalizer.**

Set service data #2 MENU Parameter No.05 to "ON".

- **Reduce the transmission start speed.**

Reduce the transmission speed by changing user data "SYSTEM SETTINGS" "TX START SPEED".

- **Loosen the TCF judgment standard.**

Not available for this fax.

- **Loosen the RTN transmission conditions.**

Change service data #3 NUMERIC Param. Parameter No.02 to 04.

No.02 Percentage of errors in all lines : Set close to 99%.

No.03 Number of lines of burst condition : Set close to 99 lines.

No.04 Lines below the burst condition : Set close to 99 times.

- **Increase the no-sound time after CFR reception.**

Change service data #1 SSSW SW04 bit 4 to "1".

Bit 4:1 Time when the low-speed signal is ignored after sending a CFR signal: 1500 ms

0 Time when the low-speed signal is ignored after sending a CFR signal: 700 ms

c) ERROR CODE LIST

The error codes that have newly been added starting with the product are identified by the notation “*new*” those error codes for which remedies unique to the product are offered are identified by the notation “UHQ (UNIQUE).”

C-1) User error code

No.	Tx or Rx	Definition
#001	[TX]	Paper jam
#003	[TX/RX]	Copy page, communication time over
#005	[TX/RX]	Initial ID (T1) time over
#009	[RX]	Recording paper jam or out of paper
#011	[RX]	Polling error
#012	[TX]	Other party out of paper
#018	[TX/RX]	Automatic dialing error
#021	[RX]	DCN during polling Rx
#022	[TX]	Call failure
#037	[RX]	Image memory full
#039	[TX]	Closed network Tx failure
#052	[RX]	Image memory full by no ink error
<i>new</i> #085	[TX]	Other party does not support ITU-T Color Faxing
#995	[TX/RX]	Memory Communication reservation cancellation

c-2) Service error code**• G3 mode error codes**

No.	Tx or Rx	Definition
##100	[TX]	Excessive repeat protocol during Rx
##101	[TX/RX]	Modem speed different from other party
##102	[TX]	Fall back failure during Tx
##103	[RX]	Fail to detect EOL for 5 seconds (15 seconds for CBT) during Rx
##104	[TX]	RTN or PIN received during Tx
##106	[RX]	Fail to receive protocol for 6 seconds when waiting for protocol during Rx
##107	[RX]	Fall back failure on Tx side during Rx
##109	[TX]	Receive Signals other than DIS, DTC, FTT, CFR or CRP after DCS Tx and exceed the number of protocol re-transmissions during Tx
##111	[TX/RX]	Memory error
##114	[RX]	RTN Transmission during reception
##200	[RX]	Fail to detect picture Rx carrier for 5 seconds during Rx
##201	[TX/RX]	DCN received other than normal binary protocol
##204	[TX]	Receive DTC without Tx data
##220	[TX/RX]	System error (main program runaway)
##224	[TX/RX]	Abnormal protocol during G3 communication
##229	[RX]	Recording unit locked for 1 minute
##232	[TX]	ENCODE control unit malfunction
##237	[RX]	DECODE control unit malfunction
##238	[RX]	PRINT control unit malfunction
##261	[TX/RX]	System error between MODEM and SCNT

No.	Tx or Rx	Definition
##280	[TX]	Excessive repeat protocol command during Tx
##281	[TX]	Excessive repeat protocol command during Tx
##282	[TX]	Excessive repeat protocol during Tx
##283	[TX]	Excessive repeat protocol during Tx
##284	[TX]	DCN reception after TCF transmission
##285	[TX]	DCN reception after EOP transmission
##286	[TX]	DCN reception after EOM transmission
##287	[TX]	DCN reception after MPS transmission
##288	[TX]	Receive signals other than PIN, PIP, MCF, RTP or RTN after EOP transmission
##289	[TX]	Receive signals other than PIN, PIP, MCF, RTP or RTN after EOM transmission
##290	[TX]	Receive signals other than PIN, PIP, MCF, RTP or RTN after MPS transmission

• **Printer error codes**

No.	Tx or Rx	Definition
##332	[TX/RX]	Printer control DRAM check error
##333	[TX/RX]	Printer control ROM check error
##334	[TX/RX]	Printer control EEPROM check error
##335	[TX/RX]	Data transmission error between the system control section and printer control section
##336	[TX/RX]	BJ head abnormal temperature error
##337	[RX]	BJ head temperature sensor error
<i>new</i> ##342	[TX/RX]	Cleaning absorption waste ink capacity full
##345	[TX/RX]	BJ cartridge head cleaning error
##346	[TX/RX]	Inside temperature error
##348	[TX/RX]	Ink detection sensor error

• **V.8/V.34 protocol error codes**

No.	Tx or Rx	Definition
<i>new</i> ##670	[TX]	At V.8 late start, the called party declares the V.8 protocol in DIS signal and this unit transmits a CI signal, but the protocol does not progress and a T1 time-out occurs.
<i>new</i> ##671	[RX]	At V.8 termination, the protocol did not advance to phase 2 and a T1 time-out occurs after the caller CM signal was detected.
<i>new</i> ##672	[TX]	The protocol did not move from phase 2 to phase 3 and a T1 time-out occurred during V.34 transmission.
<i>new</i> ##673	[RX]	The protocol did not move from phase 2 to phase 3 and a T1 time-out occurred during V.34 reception.
<i>new</i> ##674	[TX]	The protocol did not move from phase 3 to phase 4 and a T1 time-out occurred during V.34 transmission.
<i>new</i> ##675	[RX]	The protocol did not move from phase 3 to phase 4 and a T1 time-out occurred during V.34 reception.

• ECM mode error codes

No.	Tx or Rx	Definition
##750	[TX]	Exceed repeat protocol due to failure to receive significant signals after transmitting PPS-NULL during ECM Tx
##752	[TX]	Receive DCN after PPS-NULL transmission during ECM Tx
##753	[TX]	Exceed protocol retransmission limit or T5 time (60 seconds) after PPS-NULL transmission during ECM Tx
##754	[TX]	Exceed retransmit protocol after PPS-NULL transmission during ECM Tx
##755	[TX]	Exceed protocol retransmission limit due to failure to receive significant signals after PPS-MPS transmission during ECM Tx during ECM Tx
##757	[TX]	Receive DCN after PPS-MPS Transmission during ECM Tx
##758	[TX]	Exceed Protocol Retransmission Limit or T5 Time (60 seconds) after PPS-MPS Transmission during ECM Tx
##759	[TX]	Exceed Retransmit Protocol after PPS-MPS Transmission during ECM Tx
##760	[TX]	Exceed Protocol Retransmission Limit Due to Failure to Receive Significant Signals after PPS-EOM Transmission during ECM Tx
##762	[TX]	Receive DCN after PPS-EOM Transmission during ECM Tx
##763	[TX]	Exceed Protocol Retransmission Limit or T5 Time (60 seconds) after PPS-MPS Transmission during ECM Tx
##764	[TX]	Exceed Retransmit Protocol after PPS-EOP Transmission during ECM Tx
##765	[TX]	Exceed protocol retransmission limit due to failure to receive significant signals after PPS-EOP transmission during ECM Tx
##767	[TX]	Receive DCN after PPS-EOP transmission during ECM Tx
##768	[TX]	Exceed protocol retransmission limit or T5 time (60 seconds) after PPS-EOP transmission during ECM Tx
##769	[TX]	Exceed retransmit protocol after PPS-EOP transmission during ECM Tx
##770	[TX]	Exceed repeat protocol limit due to failure to receive significant signals after transmitting EOR-NULL during ECM Tx
##772	[TX]	Receive DCN after EOR-NULL transmission during ECM Tx
##773	[TX]	Exceed protocol retransmission limit or T5 time (60 seconds) after EOR-NULL transmission during ECM Tx
##774	[TX]	Receive ERR after EOR-NULL transmission during ECM Tx
##775	[TX]	Exceed protocol retransmission limit due to failure to receive significant signals after EOR-MPS transmission during ECM Tx
##777	[TX]	Receive DCN after EOR-MPS transmission during ECM Tx
##778	[TX]	Exceed protocol retransmission limit or T5 time (60 seconds) after EOR-MPS transmission during ECM Tx
##779	[TX]	Receive ERR after EOR-MPS transmission during ECM Tx
##780	[TX]	Exceed protocol retransmission limit due to failure to receive significant signals after EOR-EOM transmission during ECM Tx.
##782	[TX]	Receive DCN after EOR-EOM transmission during ECM Tx

No.	Tx or Rx	Definition
##783	[TX]	Exceed protocol retransmission limit or T5 time (60 seconds) after EOR-EOM transmission during ECM Tx
##784	[TX]	Receive ERR after EOR-EOM transmission during ECM Tx
##785	[TX]	Exceed protocol retransmission limit due to failure to receive significant signals after EOR-EOP transmission during ECM Tx.
##787	[TX]	Receive DCN after EOR-EOP transmission during ECM Tx
##788	[TX]	Exceed protocol retransmission limit or T5 time (60 seconds) after EOR-EOP transmission during ECM Tx
##789	[TX]	Receive ERR after EOR-EOP transmission during ECM Tx
##790	[RX]	Transmit ERR after EOR-Q reception during ECM Rx
##791	[TX/RX]	Receive non-significant signals during ECM mode procedures
##792	[RX]	Fail to detect PPS-NULL between partial pages during ECM Rx
##793	[RX]	Time over due to failure to receive valid frame during high speed signal Rx upon ECM Rx
##794	[TX]	Receive all 0 PPR during ECM Tx
##795	[TX/RX]	Trouble in the decoding processing during communication
##799	[TX]	System error

d) New error codes and recovery methods

Those error codes that have been added starting with the product and those error codes for which remedies unique to the product are offered are shown together with causes and remedies, where applicable.

##085 Other party does not support ITU-T Color Faxing

- Solution:**
- (1) Try sending again in black & white.
 - (2) Check the received fax machine's setting for color faxing is available.

##342 Cleaning absorption waste ink capacity full

- Solution:** Unlike errors that trigger the **"CHECK PRINTER"** message, This error is programmed so that it cannot be cleared using the **Resume** button. Replace the waste ink absorber as follows in the error occurs:
- (1) Select 5. INK ABS CAPA under #7 PRINTER in service mode, and the counter to 0.
 - (2) Check to make sure that no image exist in memory; then, turn off the power, remove the appropriate parts, and replace the waste ink absorber.

• V.8/V.34 protocol error codes**##670 [TX] At V.8 late start, the called party declares the V.8 protocol in DIS signal and this unit transmits a CI signal, but the protocol does not progress and a T1 time-out occurs.**

- Cause:** The other party disconnected the line while the CI signal was being transmitted, or ANSam/DIS from the called party was not able to be detected.
- Solution:** Increase #2 MENU No.07 transmission level within a range of -8~-15 (dBm) or set #1 SSSW SW-28 bit 0 to "1" to inhibit the V.8/V.34 protocol on calling.

##671 [RX] At V.8 termination, the protocol did not advance to phase 2 and a T1 time-out occurs after the caller CM signal was detected.

- Cause:** The caller disconnected the line or the signal from the caller was not able to be detected.
- Solution:** Increase #2 MENU No.07 transmission level within a range of -8~-15 (dBm) or set #1 SSSW SW-28 bit 1 to "1" to inhibit the V.8/V.34 protocol for the called party.

##672 [TX] The protocol did not move from phase 2 to phase 3 and a T1 time-out occurred during V.34 transmission.

- Cause:** The called party disconnected the line during phase 2 or the signal from the called party was not able to be detected.
- Solution:** Increase #2 MENU No.07 transmission level within a range of -8~-15 (dBm) or set #1 SSSW SW-28 bit 0 to "1" to inhibit the V.8/V.34 protocol on calling.

##673 [RX] The protocol did not move from phase 2 to phase 3 and a T1 time-out occurred during V.34 reception.

Cause: The transmitter disconnected the line during phase 2 or the signal from the transmitter was not able to be detected.

Solution: Increase #2 MENU No.07 transmission level within a range of -8~-15 (dBm) or set #1 SSSW SW-28 bit 1 to "1" to inhibit the V.8/V.34 protocol on termination.

##674 [TX] The protocol did not move from phase 3 to phase 4 and a T1 time-out occurred during V.34 transmission.

Cause: The called party disconnected the line during phase 3 or the signal from the called party was not able to be detected.

Solution: Increase #2 MENU No.07 transmission level within a range of -8~-15 (dBm) or set #1 SSSW SW-28 bit 0 to "1" to inhibit the V.8/V.34 protocol on calling.

##675 [RX] The protocol did not move from phase 3 to phase 4 and a T1 time-out occurred during V.34 reception.

Cause: The transmitter disconnected the line during phase 3 or the signal from the transmitter was not able to be detected.

Solution: Increase #2 MENU No.07 transmission level within a range of -8~-15 (dBm) or set #1 SSSW SW-28 bit 1 to "1" to inhibit the V.8/V.34 protocol on termination.

4.3 Errors not Shown on the Display

4.3.1 General errors

- **The unit does not power on.**

- (1) Check the power cord connection.
- (2) Check the connection between the SCNT board (JPSU1) and power supply unit.
- (3) Check the power supply unit's fuse (F1).
- (4) Replace the power supply unit.

- **The display looks abnormal.**

- Nothing is displayed.**

- (1) Check the connection between the Operation panel unit and SCNT board (JPANEL1).
- (2) Replace the Operation panel unit.
- (3) Replace the SCNT board.

- Part of the LCD panel does not display anything.**

- (1) Check the connection between the Operation panel unit and SCNT board (JPANEL1).
- (2) Replace the Operation panel unit.
- (3) Replace the SCNT board.

- **The buttons do not work.**

- (1) If the test mode can be used, check for faulty buttons.
- (2) Check the connection between the Operation panel unit and SCNT board (JPANEL1).
- (3) Replace the Operation panel unit.
- (4) Replace the SCNT board.

- **No sound from the speaker**

- (1) Check the connection of the speaker and SCNT board (JSPK1).
- (2) Replace the speaker.
- (3) Replace the SCNT board.

4.3.2 Printing problems

- **Faulty printing (Evaluation criteria: Test print is no good.)**
- **The paper is not fed properly. (Evaluation criteria: Look at the actual unit.)**

The Paper feed motor does not run.

- (1) Check the connection from the paper feed motor to the PCNT board (J10).
- (2) Replace the PCNT board.
- (3) Replace the main unit.

The paper is not picked up from the auto sheet feeder.

- (1) Check the connection ASF motor to the PCNT board (J7).
- (2) Check the foreign matter in the paper feed section.
- (3) Replace the ASF unit.
- (4) Replace PCNT board (Faulty PRS or PES).

- **The printing operation is abnormal.**

Nothing is printed.

- (1) Remove the BJ-cartridge and re-install it.
- (2) Execute cleaning five times, and try printing again.
- (3) Replace the BJ cartridge.
- (4) Replace the ink tank.
- (5) Check the connection between carriage ribbon cable and PCNT board (J1, J2, J3).
- (6) Replace the carriage unit.
- (7) Replace the PCNT board.

The carriage motor does not run.

- (1) Check the connection from the carriage motor to the PCNT board (J9).
- (2) Replace the carriage motor.
- (3) Replace the PCNT board.

- **Printing quality error**

- **The printer does not at all.**

- **Printing stops midway.**

- **Certain colors are not printed.**

- (1) Check that the orange cap or tape is not on the BJ cartridge.
- (2) Carry out nozzle cleaning on the BJ cartridge five times with the cleaning operation, then visually check the test print for non-discharge of ink from nozzle. (*Fig. 4-7*)
- (3) Remove and reinstall the BJ cartridge.
- (4) Replace the appropriate ink tank.
- (5) Replace the BJ cartridge.
- (6) Replace the purge unit.

- **Blotches appear**

- **Blank ink appear**

- (1) Carry out nozzle cleaning on the BJ cartridge five times with the cleaning operation, then visually check the test print for non-discharge of ink from nozzle. (*Fig. 4-7*)
- (2) Remove and reinstall the BJ cartridge.
- (3) Replace the appropriate ink tank.
- (4) Replace the BJ cartridge.
- (5) Check the connection of the carriage ribbon cable and the PCNT board. (J1/J2/J3)
- (6) Replace the carriage unit.
- (7) Replace the PCNT board.
- (8) Replace the purge unit.

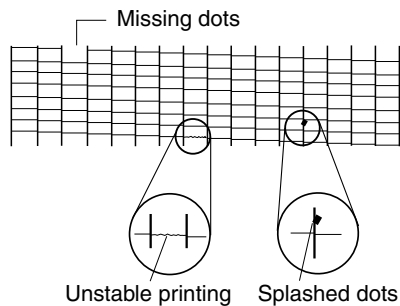


Figure 4-7 Defective Pattern (Sample)

4.3.3 Scanning problems

- **Faulty scanning (Evaluation criteria: Test print is good, but the copied image is no good.)**

- **The document is not fed.**

The document feed motor does not run. (Evaluation criteria: Check it visually.)

- (1) Check the connection from the document feed motor to the ADF board (JFM).
- (2) Check the connection from the ADF board and SCNT board (FADF1).
- (3) Replace the document feed motor.
- (4) Replace the ADF board.
- (5) Replace the SCNT board.

The document slips against the rollers. (Evaluation criteria: Check it visually. Stretched copy image.)

- (1) See *page 4-4* and clean the document reading section.
- (2) Replace the ADF section's rollers.

The document does not separate. (Evaluation criteria: Check it visually.)

- (1) Check whether the reading motor is driving all the rollers. (Check for any damaged gears or foreign matter stuck inside.)
- (2) See *page 4-4* and clean the separation roller and separation guide.
- (3) Replace the separation roller and separation guide.

Faulty scanner unit's sensors (Evaluation criteria: The placed document or transported document is not detected.)

- (1) Check for any faulty sensors while executing the copying operation and test mode.
- (2) Check the connection from Document sensor and Document edge sensor to the ADF board (JDS, JDES).
- (3) Check the connection from the ADF board to the SCNT board (JADF1).
- (4) Replace the SCNT board.
- (5) Replace the ADF board.

• **The scanning image is abnormal. (Evaluation criteria: Check the copy image's faults.)**

Nothing is printed.

- (1) Check the connection between the contact sensor and SCNT board (JCS1).
- (2) Replace the contact sensor unit.
- (3) Replace the SCNT board.

The image has vertical stripes.

- (1) Clean the Document glass.
- (2) Clean the white sheet.
- (3) Check the connection between the contact sensor and SCNT board (JCS1).
- (4) Replace the contact sensor unit.

The halftone image contains black dots.

- (1) Clean the Document glass.
- (2) Clean the white sheet.
- (3) Check the connection between the contact sensor and SCNT board (JCS1).
- (4) Adjust the CS LED lights-on duration. See *Page 4-6*.
- (5) Replace the contact sensor unit.
- (6) Replace the SCNT board.

The color or brightness of the image is not normal.

- (1) Clean the Document glass.
- (2) Clean the white sheet.
- (3) Adjust the CS LED lights-on duration. See *Page 4-6*.
- (4) Replace the contact sensor unit.
- (5) Replace the SCNT board.

4.4 Processing Communication Problems

4.4.1 Initial identification of problems

Since the facsimile must transmit picture information, a transmitter, a receiver and telephone lines are required for this purpose. Transmissions may cause problems if one or more of the three is poor.

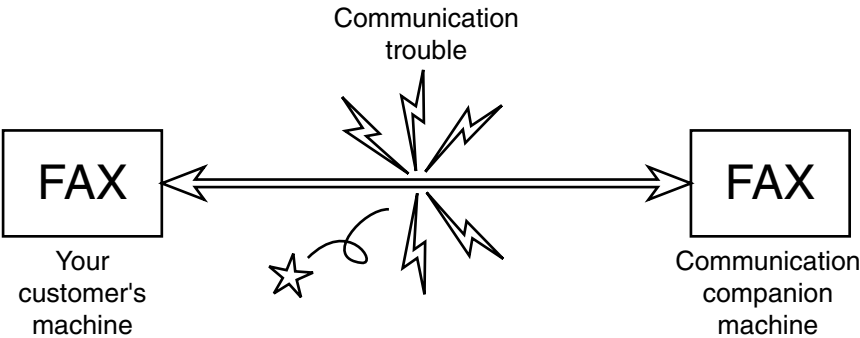


Figure 4-8 Communication Trouble

To process communication problems, first of all, it is necessary to narrow down the cause of the problem. Thus, the procedures appearing below must be checked accordingly.

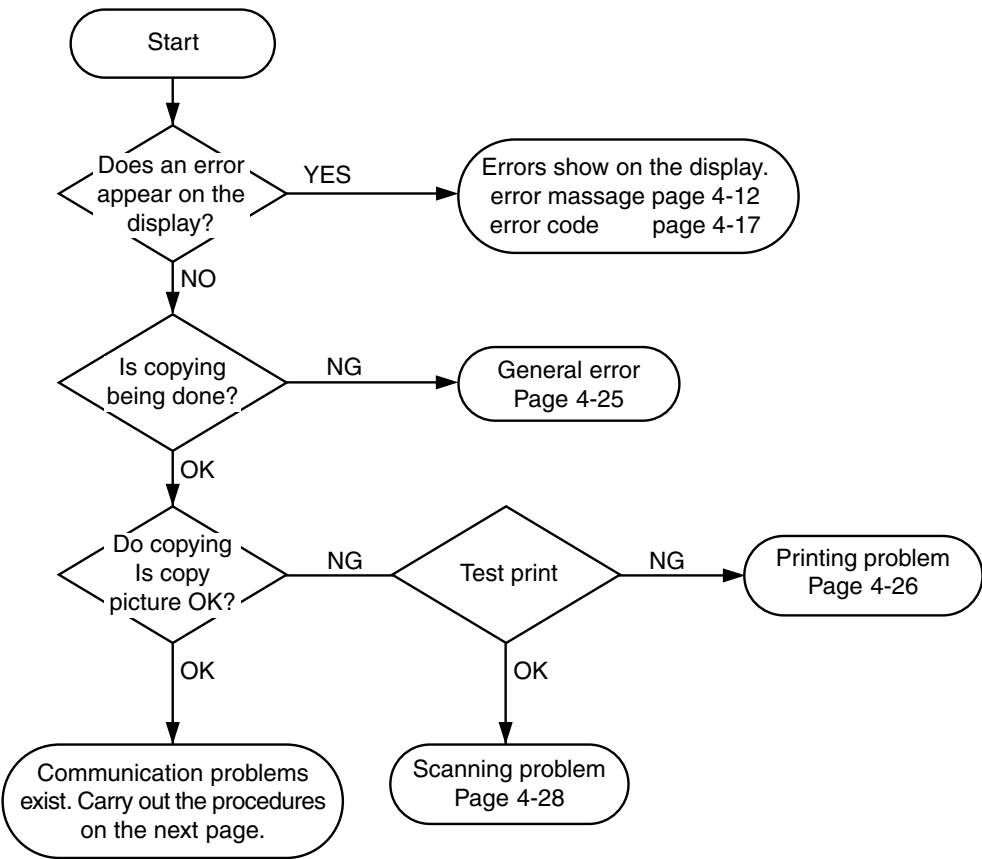


Figure 4-9 Procedures for Initial Identification of Trouble

4.4.2 Procedures for processing communication problems

If the problem proves to be communication trouble, deal with it according to the following procedures.

- (1) Study the conditions at the time of trouble as closely as possible.

Record or keep the items listed below.

- a) Operations at the time of trouble

[Document number, transmission mode, error occurrence timing call set-up method
(auto dialing etc.)

- b) Sample of defective picture (When receiving)

- c) LCD display at the time of trouble

- d) Communication management report at the time of trouble

- e) User's name, telephone number (to contact), Fax number, model name

- f) User's name of the other party, telephone number (to contact), Fax number, model name, name of servicemen in charge

- g) Frequency of trouble and error code (## 100 etc)

- h) Condition of the other party's facsimile:

[Transmitted/received page number? Automatic or manual?
Error occurred? The receive condition? etc.



NOTE

When visiting a user with a trouble report, a) can be known by outputting the error protocol data (or error dump), and g) can be known by outputting the total transaction report (or the system error data list).

- (2) Test communication according to flowchart procedures appearing on the next page.

- Carry out the tests with the actual lines on each item several times, verify the symptoms and record it.
- In the case of trouble with another manufacturer's facsimile, refer to the flowchart for troubles with other manufacture's.

- (3) Finally, process over by judging systematically all the data.



NOTE

If the other party's facsimile is that of another manufacturer and there is nothing wrong with your customer's machine, it is recommended that you ask your customer to contact the facsimile user of the other party, so that the other party's facsimile is checked by the dealer.

"Call the service station" in the flowchart (*Fig. 4-11*) means that problems may occur with regard to the communication compatibility of facsimile, consult the matter with the staff in charge at the service station. To quicken the resolving of the problem, report the information listed in (1) above.

- Procedures for processing communication problems with the Canon facsimile
- The process for carrying out communications at three points as shown in the figure.

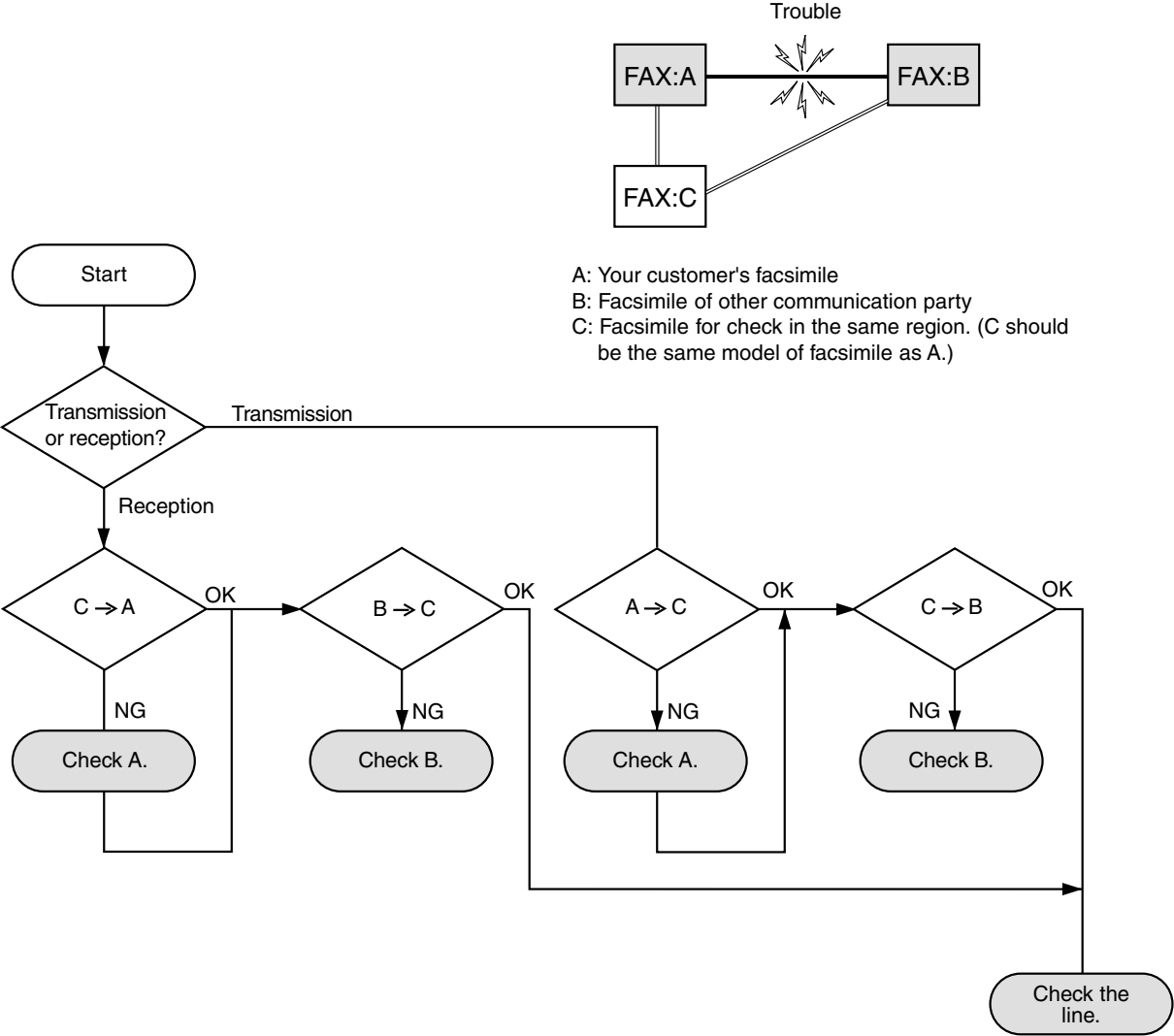


Figure 4-10 Flowchart for Processing Communication Troubles with Canon Facsimile

- Procedures for processing communication problems with other manufacturer's facsimiles
- When problems occur with other manufacturer's facsimiles, make the user of the other party's facsimile call the serviceman in charge. Perform communication at the four points listed in the figure.

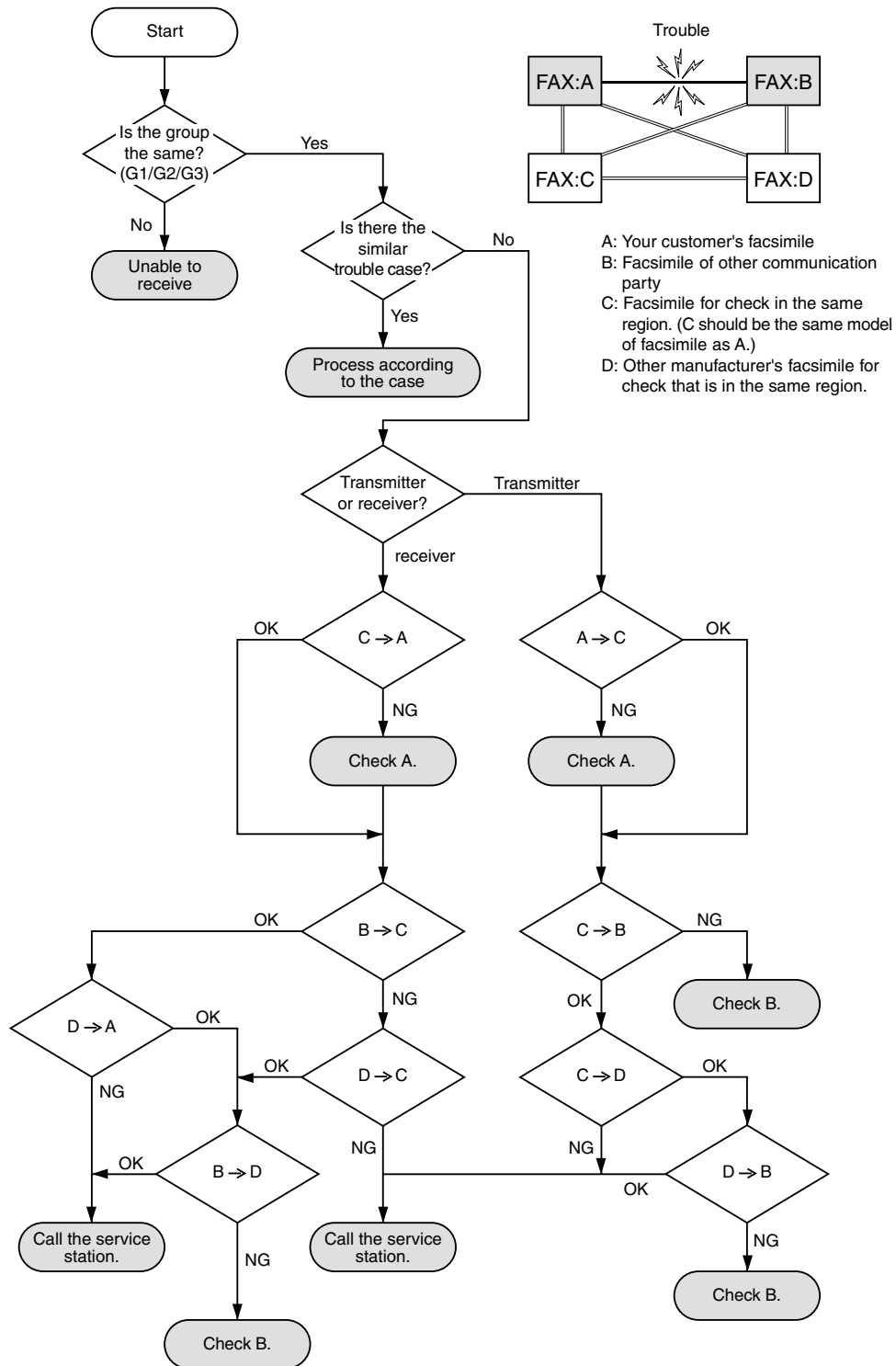


Figure 4-11 Flowchart for Processing Communication Troubles with other manufacturer's facsimiles

5. SERVICE SWITCHES

5.1 Hardware Switches

There is no service hardware switch on the Circuit board.

5.2 Service Data Setting

Service data can be checked and changed with items on display menus. The default values of the SSSW/parameters available in this fax machine are shown in *this Chapter, 5.2.3 Service data setting* in this manual. The SSSW/parameters given in the previous product-specific manual are explained in the *G3 Facsimile Service Data Handbook*. The new switches for this model are described in *this Chapter, 5.2.3 Service data setting*.

5.2.1 Service data overview

The service data menu items are divided into the following nine blocks.

#1 SSSW (Service soft switch settings)

These setting items are for basic fax service functions such as error management, echo countermeasures, and communication trouble countermeasures.

#2 MENU (MENU switch settings)

These setting items are for functions required during installation, such as NL equalizer and transmission levels.

#3 NUMERIC Param. (NUMERIC parameter settings)

These setting items are for inputting numeric parameters such as the various conditions for the FAX/TEL switching function.

#4 NCU (NCU settings)

These setting items are for telephone network control functions such as the selection signal transmission conditions and the detection conditions, for the control signals sent from the exchange.

#5 TYPE (TYPE setting)

The type setting makes the service data conform to a specific country communications standards. There is only one setting item in this block.

#6 GENESIS (UHQ function setting)

These setting items are for scanned image processing such as edge enhancement and error diffusion processing.

#7 PRINTER (PRINTER function settings)

These setting items are for basic printer service functions such as the reception picture reduction conditions. Also there is an item for resetting the printer section without switching the power off-on.

#8 CLEAR (Data initialization mode)

Various data are initialized by selecting one of these setting items. There is a setting item for checking/ inputting the total number of pages printed and total number of pages scanned by this fax.

#9 ROM (ROM management)

ROM data such as the version number and checksum are displayed.

5.2.2 Service data registration/setting method

Service data can be registered/set by the following operations:

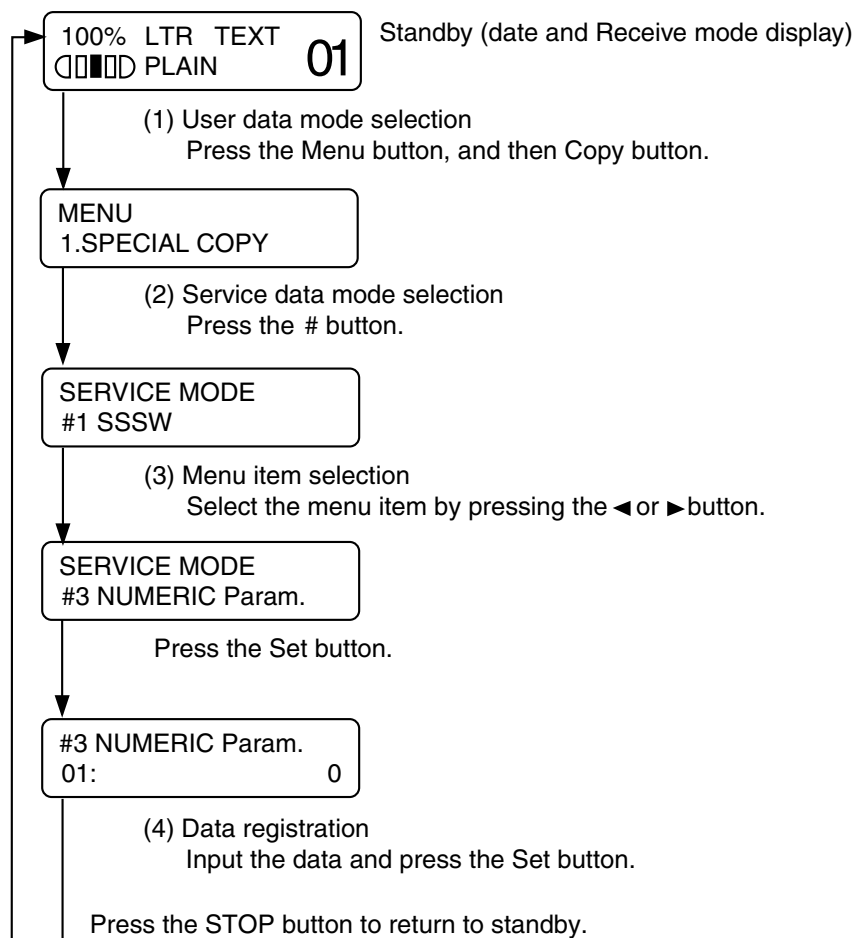


Figure 4-12 Service Data Setting Method

**Precautions when registering/setting service data**

Detach the telephone line before registering service data. We cannot guarantee the integrity of any reception of transmission operations during the registration process.

5.2.3 Service data setting

Service

<

Figure 4-13 Service Data (page 1)



The switches marked “—” are not used. Do not change their settings.

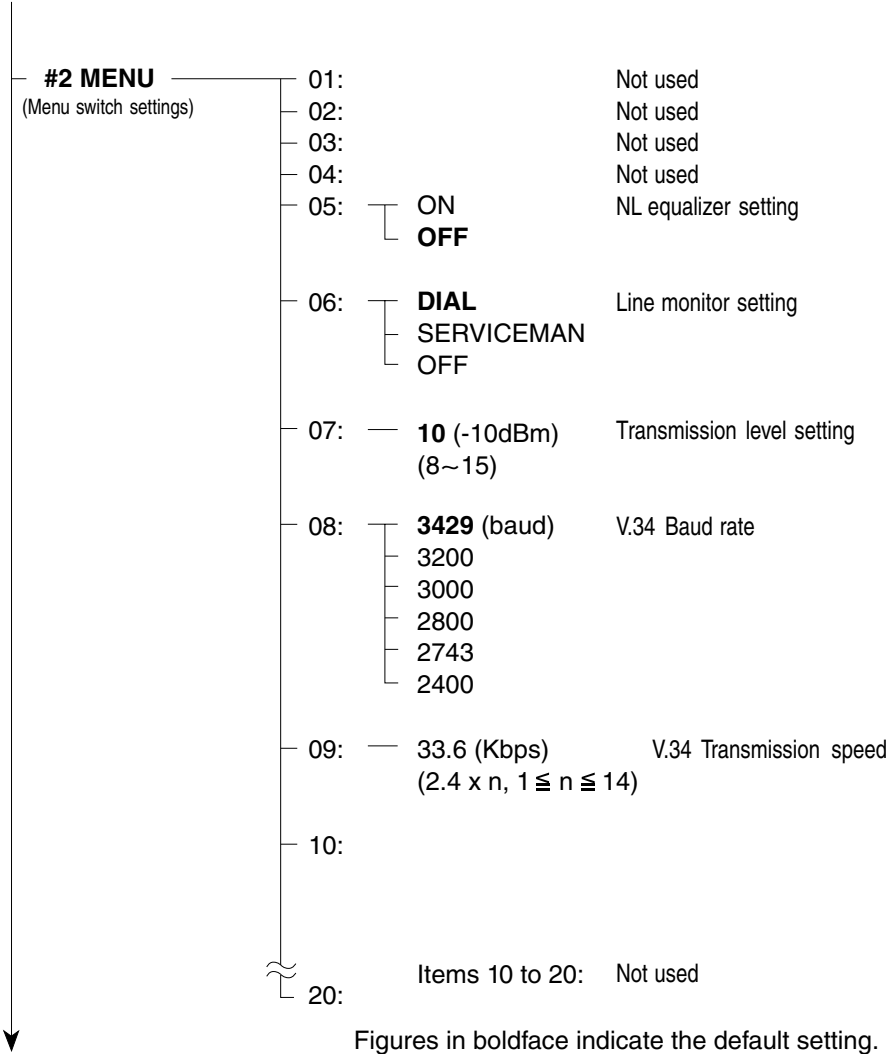


Figure 4-14 Service Data (page 2)



No. 01 to 04, 10 to 20 are not used. Do not change their settings.

#3 NUMERIC Param.

(Numeric parameter settings)

	Default	Range	
01:	0		Not used
02: —	10 (10%)	(1 ~ 99)	RTN signal transmission condition (1)
03: —	15 (15 lines)	(2 ~ 99)	RTN signal transmission condition (2)
04: —	12 (12 times)	(1 ~ 99)	RTN signal transmission condition (3)
05:	4		Pause time for NCC (after the ID code)
06:	4		Pause time for NCC (after the ID code)
07:	350		Not used
08:	0		Not used
09: —	6 (6 digits)	(1 ~ 20)	The number of digits in telephone number compared against TSI signal to be matched for restricted receiving function
10: —	5500 (55 seconds)	(0 ~ 9999)	Line connection detection time (T0 timer)
11: —	3500 (35 seconds)	(0 ~ 9999)	T1 Timer (Rx)
12:	0		Not used
13:	1320		Not used
14:	0		Not used
15: —	120 (1200 ms)	(0 ~ 999)	Hooking detection time
16: —	4 (4 seconds)	(0 ~ 9)	Pseudo RBT transmission from CML on time until start
17: —	100 (1000 ms)	(0 ~ 999)	Pseudo RBT signal pattern: On time
18: —	0 (0 ms)	(0 ~ 999)	Pseudo RBT signal pattern: Off time (short)
19: —	200 (2000 ms)	(0 ~ 999)	Pseudo RBT signal pattern: Off time (long)
20: —	100 (1000 ms)	(0 ~ 999)	Pseudo ring pattern: On time setting
21: —	0 (0ms)	(0 ~ 999)	Pseudo ring pattern: Off time (short)
22: —	200 (2000 ms)	(0 ~ 999)	Pseudo ring pattern: Off time (long)
23: —	44	(Do not change)	FAX/TEL switching function signal detection level
24: —	20	(0 ~ 20)	Pseudo-RBT signal transmission level
25: —	60 (600 ms)	(0 ~ 999)	Answering machine connection function signal detection time
26: —	4 4	(Do not change)	Answering machine connection function no sound detection level
27:	0		Not used
28:	0		Not used
29:	0		Not used
30:	0		Not used

Figure 4-15 Service Data (page 3)

No. 01, 07 to 08, 12, 14, and 27 to 30 are not used. Do not change their settings.



NOTE

#3 NUMERIC PARAM. (Numeric parameter settings)

The relationship between the settings and the detection levels is as follows:

Parameter 24

0: Not used	1: Not used	2: Not used	3: Not used	4: Not used
5: -8 dBm	6: -9 dBm	7: -10 dBm	8: -11 dBm	9: -12 dBm
10: -13 dBm	11: -14 dBm	12: -15 dBm	13: -16 dBm	14: -17 dBm
15: -18 dBm	16: -19 dBm	17: -20 dBm	18: -21 dBm	19: -22 dBm
20: -23 dBm				

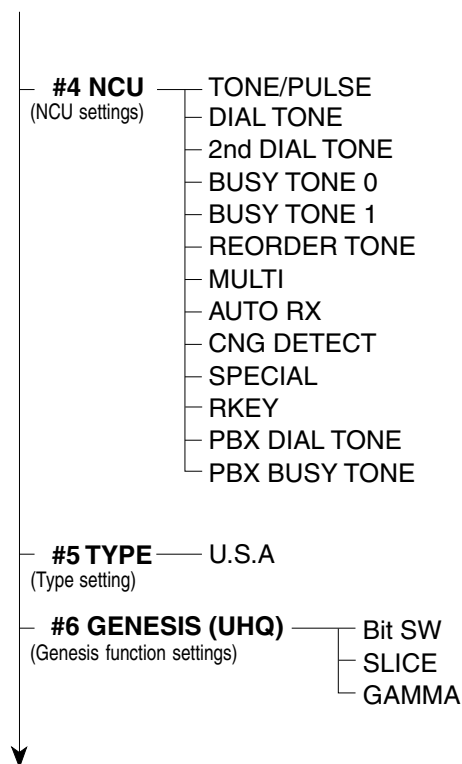


Figure 4-16 Service Data (page 4)



#4 NCU (NCU settings)

The values of these items are all set to match a specific nation's communications standards by the #5 TYPE setting. Do not change these setting.

#6 GENESIS (UHQ function settings)

Tampering with this setting may cause the scanned image quality to deteriorate. Do not change these settings.

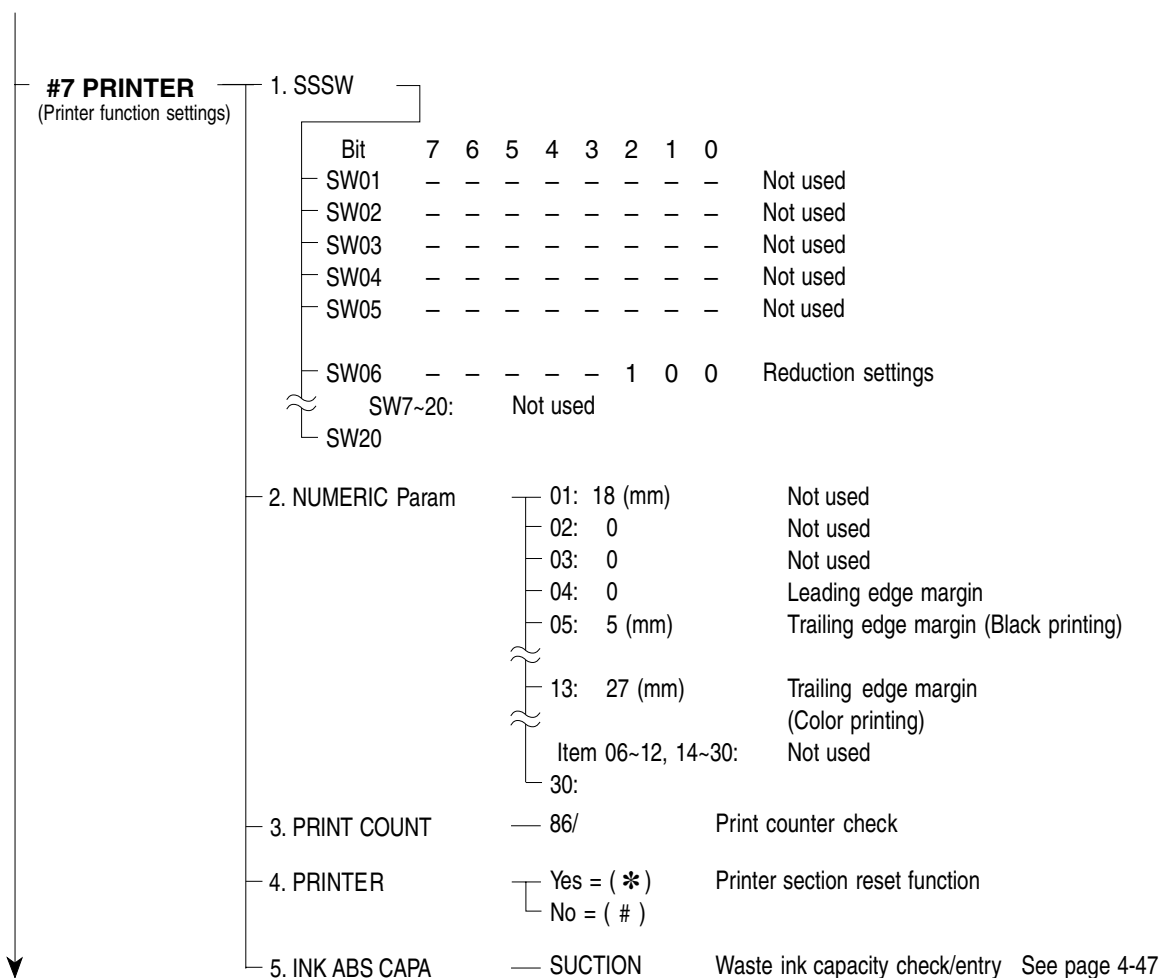


Figure 4-17 Service Data (page 5)

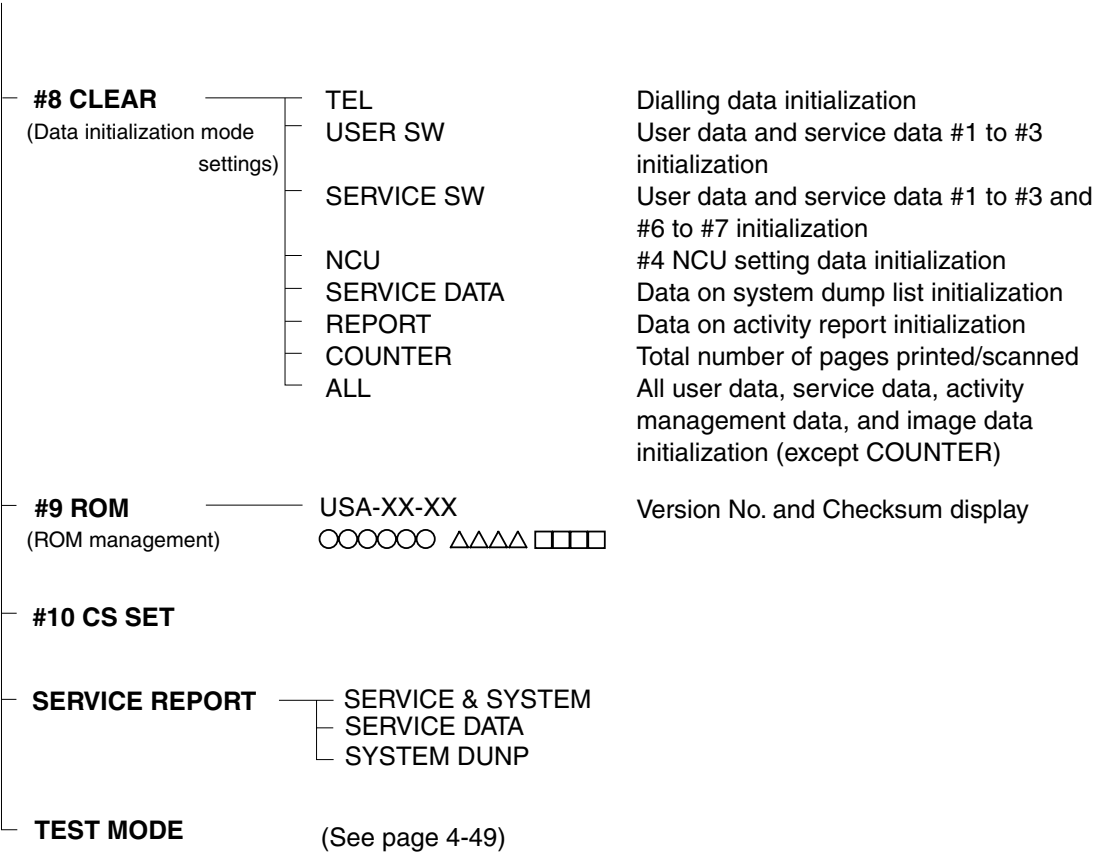
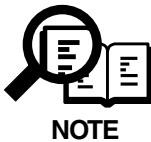


Figure 4-18 Service Data (page 6)



NOTE

If USER SW is selected from #8 CLEAR, the memory management of the user data is not cleared. If TEL or SERVICE SW is selected, the memory management of the user data is cleared.



REFERENCE

For details on test mode, see 6.2 Service Test Functions on page 4-48.

5.2.4 Explanation of service data

a) SSSW (Service Soft Switch settings)

The items registered and set by each of these switches comprise 8-bit switches. The figure below shows which numbers are assigned to which bits. Each bit has a value of either 0 or 1.

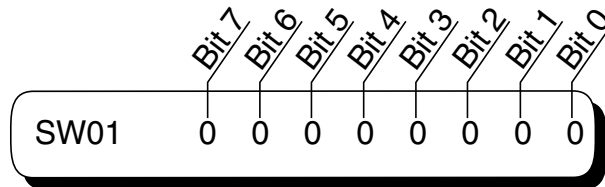


Figure 4-19 Bit Switch Display

See the chart in the service data shown in *this Chapter, 5.2.3 Service data setting* to see effective bits and their default values. The meanings (functions) of the bits are not described in this manual except the new switches added to this model. See *the G3 Facsimile Service Data Handbook (supplied separately)* for details of the switches.

Below are examples showing how to read bit switch tables.

Bit	Function	1	0
0	Service error code	Output	Not Output
1	Error dump list	Output	Not Output
2	Not used		
3	Copy function	No	Yes
4	##300 series service error code	Output	Not Output
5	Not used		
6	Not used		
7	User setting restriction	Setting possible	Setting restricted

Indicates that the setting is "1".

Indicates that the setting is "0".

Figures in boldface are default settings.

Figure 4-20 How to Read Bit Switch Tables

5.2.5 New SSSWs/parameters added to this model

#1 SSSW (service soft switch setting)

SW01 (service soft switch 01: error management)

Bit	Function	1	0
0	Service error code	Output	Not output
1	Error dump list	Output	Not output
2	Not used		
3	Copy function	No	Yes
4 (New)	##300 series service error code	Output	Not output
5	Not used		
6	Not used		
7	User setting restriction	Setting possible	Setting restricted

[Bit 4]

Even when Bit0 is set to "Not output", you can select whether or not to output ##300 series Service Error Codes, caused by hardware malfunction.

When "Output" is selected, ##300 series Service Error Codes are displayed and in reports.

When "Not Output" is selected, no Service Error Codes are displayed.

SW28 (service soft switch 28: V.8/V.34 protocol settings)

Bit	Function	1	0
0 (New)	Caller V.8 protocol	NO	YES
1 (New)	Called party V.8 protocol	NO	YES
2 (New)	Caller V.8 protocol late start	NO	YES
3 (New)	Called party V.8 protocol late start	NO	YES
4 (New)	V.34 reception fallback	Prohibited	Not prohibited
5	Not used		
6	Not used		
7	Not used		

[Bit 0]

Select whether to use the V.8 protocol when calling. If NO is selected, the V.8 protocol is inhibited at calling and the V.21 protocol is used.

[Bit 1]

Select whether to use the V.8 protocol when called. If NO is selected, the V.8 protocol is inhibited when called and the V.21 protocol is used.

[Bit 2]

If ANSam signal is not received during transmission (mainly manual transmission), select whether to use the V.8 protocol when the other fax machine declares the V.8 protocol in DIS signal. If NO is selected, the CI signal is not transmitted and the V.8 protocol is not used even if the DIS that specifies the V.8 protocol is received.

[Bit 3]

Select whether to declare the V.8 protocol in DIS signal for reception (mainly caller manual transmission). If NO is selected, the V.8 protocol cannot be used because it is not declared in DIS signal.

[Bit 4]

Select whether the receiver falls back during V.34 reception. If OFF is selected, the receiver does not fall back.

#2 MENU

No.	Function	Selection range	Default setting
08	V.34 max. baud rate	2400~3429	3429 (3429 baud)
09	V.34 max. transmission speed	2400~33600	33600 (33600 bps)

[No. 08]

Select the maximum baud rate for V.34 transmission: 3429, 3200, 3000, 2800, 2743, and 2400.



This model cannot use 2743 baud due to its modem specification. If it is set to 2743 baud, the maximum baud rate is 2400 baud.

NOTE

[No.09]

Select the maximum transmission speed for V.34 transmission: 2400 to 33600 bps ($2400 \times n$: $1 \leq n \leq 14$).

#3 NUMERIC PARAM (numeric parameter settings)

No.	Function	Selecting range	Default setting
10	T0 Timer	0~9999	5500 (55 second)
11	T1 Timer (Rx)	0~9999	3500 (35 second)

[Parameter 10]

The "wait time after transmission of a dialing signal ends until a significant signal is detected in transmission" was set as T1 timer with parameter 10.

However, ITU-T recommends that it should be set as T0 timer, so parameter 10 has been renamed to T0 timer and the default time-out time has been changed from 35 to 55 seconds.



The T1 timer for the transmitter (wait time after a CED, V21 flag, or ANSam significant signal is detected until the next significant signal is detected) is fixed at 35 seconds.

NOTE**[Parameter 11]**

Set the T1 timer for the receiver (wait time after DIS transmission starts until a significant signal is received).

If frequent errors occur during reception (2 instances) because of line connection conditions, raise the value of this parameter.

#7 PRINTER (printer function settings)**2. NUMERIC PARAM.**

No.	Function	Selecting range	Default setting
05	Trailing edge margin for black&white copy & FAX	0 ~ 9999	7 (7 mm)
13	Trailing edge margin for color copy & color FAX	0 ~ 9999	27 (27 mm)

[Parameter 07]

Sets the bottom margin for B/W printing (Copy & Fax). This parameter also sets the margins when PRINT MARGIN in user data is set to **SMALLER** for color printing.

[Parameter 13]

Sets the bottom margin for color printing. The margin used when PRINT MARGIN in user data is set to **NORMAL** can be changed by this parameter when color printing. However, when the trailing edge of the recording paper passes through the pinch roller when the margins have been narrowed, there are cases where a small amount of color shift occurs at the bottom edge of the image.

5. INK ABS CAPA

This switch allows the waste ink capacity stored in the PCNT board to be checked or entered.

[SUCTION]

This allows the waste ink capacity for the ink absorbed during cleaning to be checked or entered.

When entering the waste ink capacity, use the numeric buttons to enter a value 0 to 100 (%).



NOTE

The ink absorber's absorption capacity for the waste ink discharged by the BJ cartridge is set to a certain amount. The waste ink capacity settings are stored in the PCNT board's EEPROM. When replacing the PCNT board, check the waste ink capacity and enter the waste ink capacity into the new PCNT board.

The various waste ink capacity can be checked with the **SYSTEM DUMP LIST**.

6. TEST FUNCTIONS

6.1 User Test Print Functions

User enabled Test print functions are as follow.

6.1.1 Nozzle check pattern

If you find a nozzle pattern indistinct or partially missing when you conduct this test print, do the head cleaning. If the symptom is not solved even after the cleaning is done three times, do the head refreshing. If the head refreshing does not solve the symptom, replace the BJ cartridge or the ink cartridge. The method of printing a nozzle check pattern is to press the **Menu** button, select **PRINTER SETTING** using < / > keys, and press the **Set** button. Select **NOZZLE CHECK** using < / > keys, and then press the **Set** button.

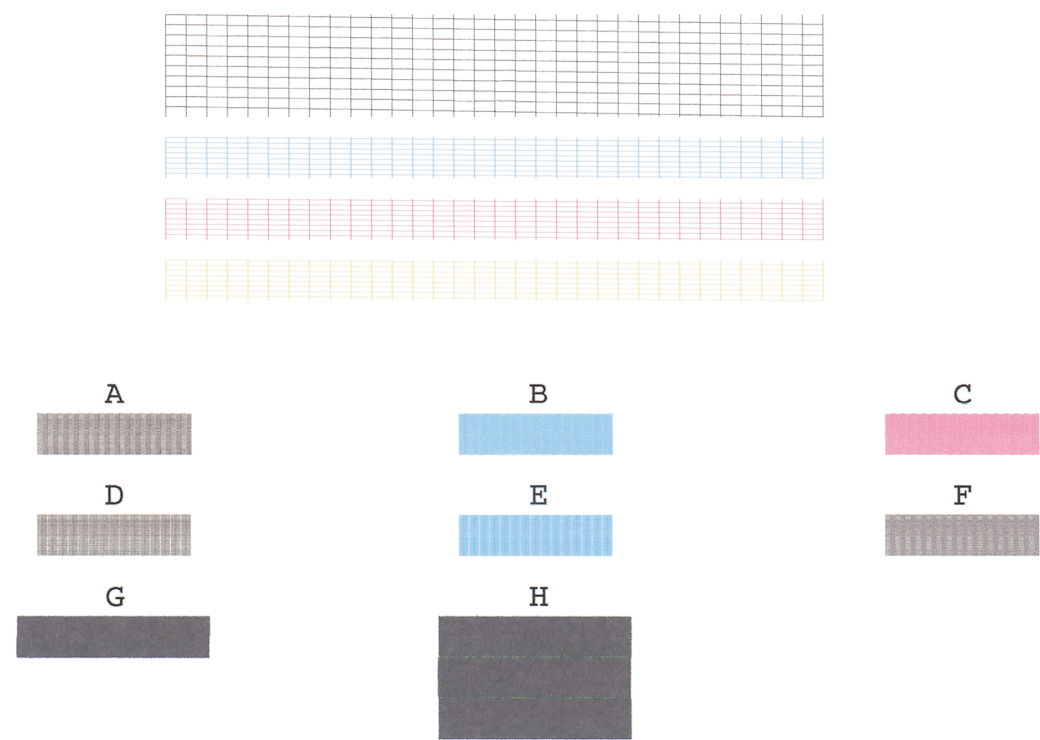


Figure 4-21 Nozzle Check Pattern Print

6.2 Service Test Functions

The fax functions for testing individual operations, such as below.

See *Page 4-35* for details of entering the test mode. To leave the test mode, press the **Stop/Reset** button, and then **ON/OFF** button.

6.2.1 Test mode overview

Test mode can be executed by following the menu items from the display.

a) DRAM tests

Writes data to DRAM image storage areas and reads that data to check operations.

b) CS test

CS test is used to enter the contact sensor's shading data.

c) Print test

Prints nine different patterns within the print area.

d) Modem, NCU tests

The frequency test and the G3 signal transmission and CNG signal and DTMF signals reception tests.

e) Faculty tests

Test the operation of operation panel and sensor functions.

6.2.2 Test mode flowchart

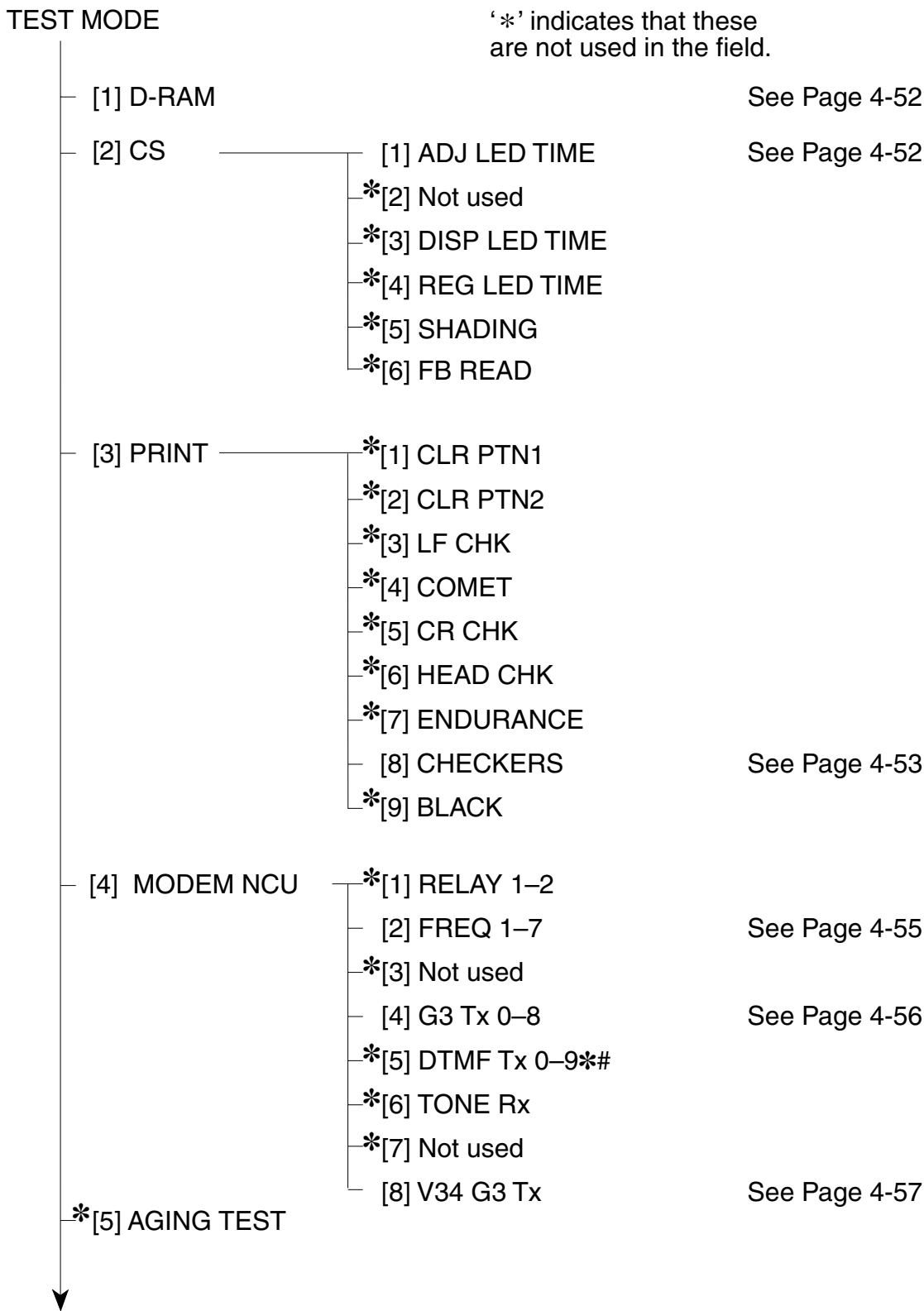


Figure 4-22 Test Mode

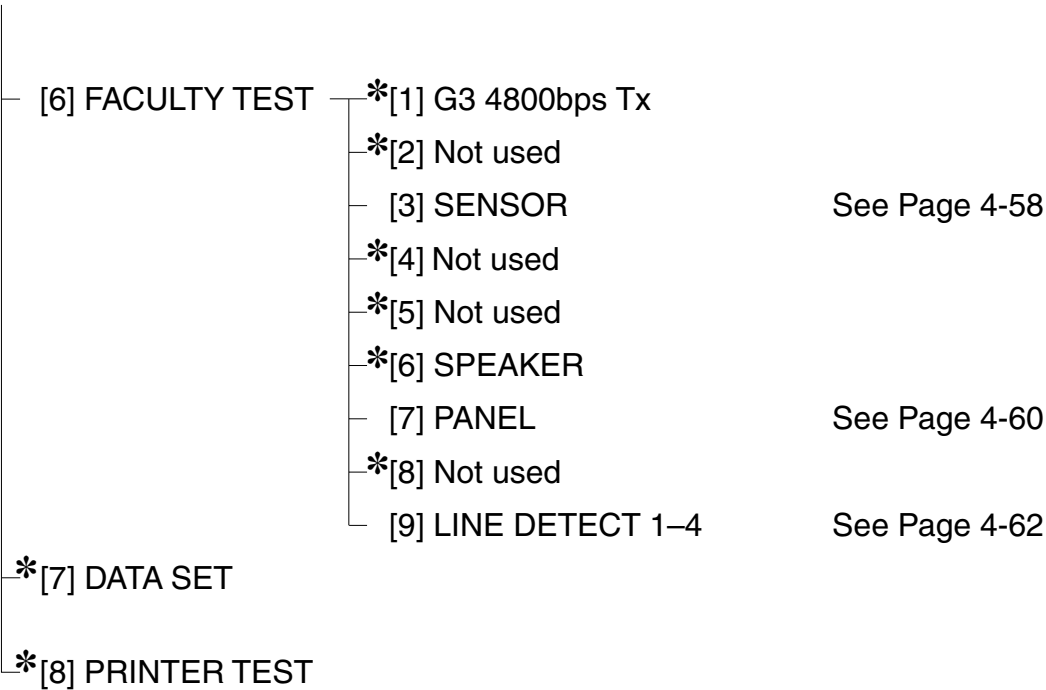


Figure 4-23 Test Mode

6.2.3 D-RAM tests

Pressing the 1 button from the test mode menu selects the D-RAM tests. D-RAM Test 1 writes data to the entire D-RAM region and reads it out to check that operations are correct. D-RAM Test 2 just reads data at high speed.
Replace the SCNT board if an error occur.

Operating

1:D-RAM4528K

***. . . . ***

4528K: D-RAM total memory capacity (bytes)
*: Indicates an address for which write testing is complete.
.: Indicates an address for which read testing is complete.

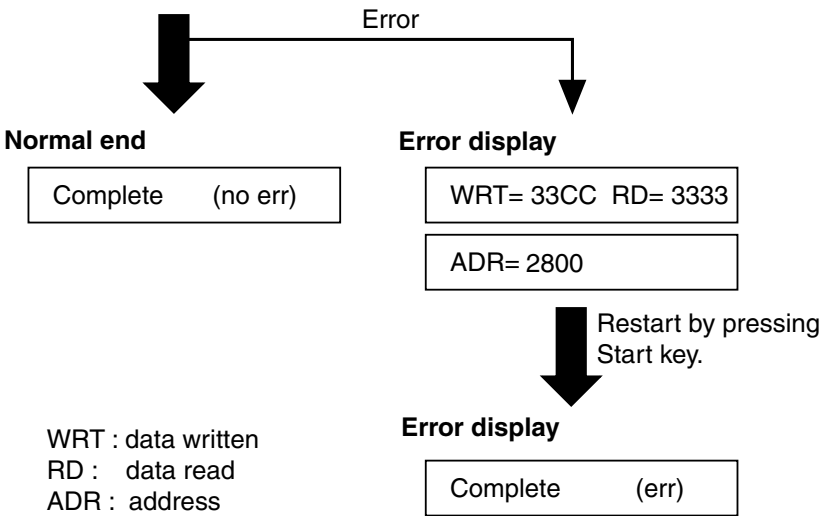


Figure 4-24 D-RAM Test

6.2.4 CS tests

Pressing the 2 button from the test mode menu selects the CS tests. **ADJ LED TIME** is used to adjust the CS LED lights-on duration and enter the contact sensor's shading data (pre-scan operation).

REFERENCE

Details on CS LED lights-on duration adjustment, see 3.1 CS LED Lights-on Duration Adjustment on page 4-6.

Tests [2], [3], [4] and Tests [5] are not used in the field.

6.2.5 PRINT test

Pressing the **3** button from the test mode menu selects the print test. This test prints various patterns. For servicing, use the 3-8: CHECKERS pattern (press the **8** button from the print test menu). The other patterns are not to be used since they are for development and factory personnel. End this test by pressing the **Stop** button. Refer to page 4-27 if blank ink appear, etc occur.

Check the pattern for the following:

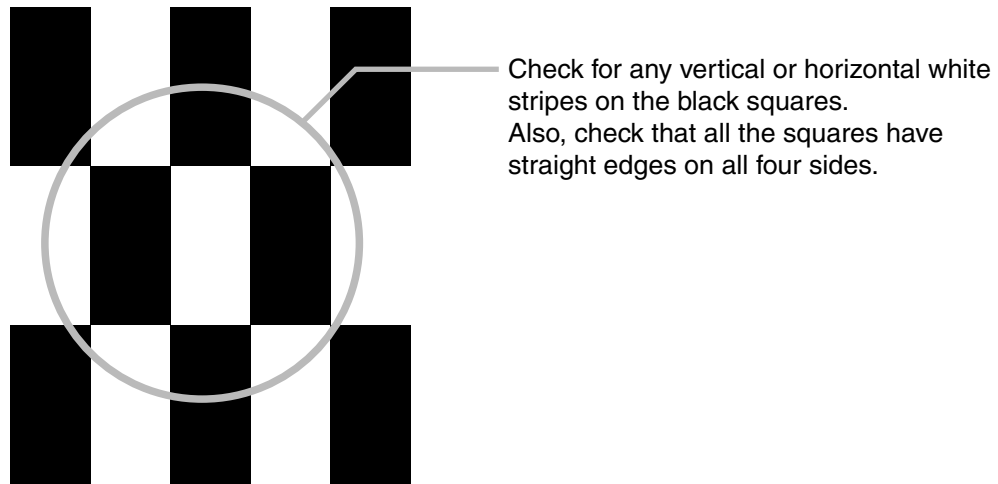


Figure 4-25 Print Test Pattern Check



NOTE

If the print test is normal, make a copy of a document. If the copy is faulty, the reading section is faulty.



Please do not select the following menus:

3-1: CLR PTN1 3-2: CLR PTN2

If a mistake is made and these menus are selected, the value of **#7 PRINTER 5. INK ABS CAPA** will be reset to 0%, so it will be necessary to re-register. Check the value of LostInkCount. printed on the top of each test pattern, and register this value in **#7 PRINTER 5. INK ABS CAPA**. If the absorption amount has been forgotten, replace the waste ink absorber and set to 0%

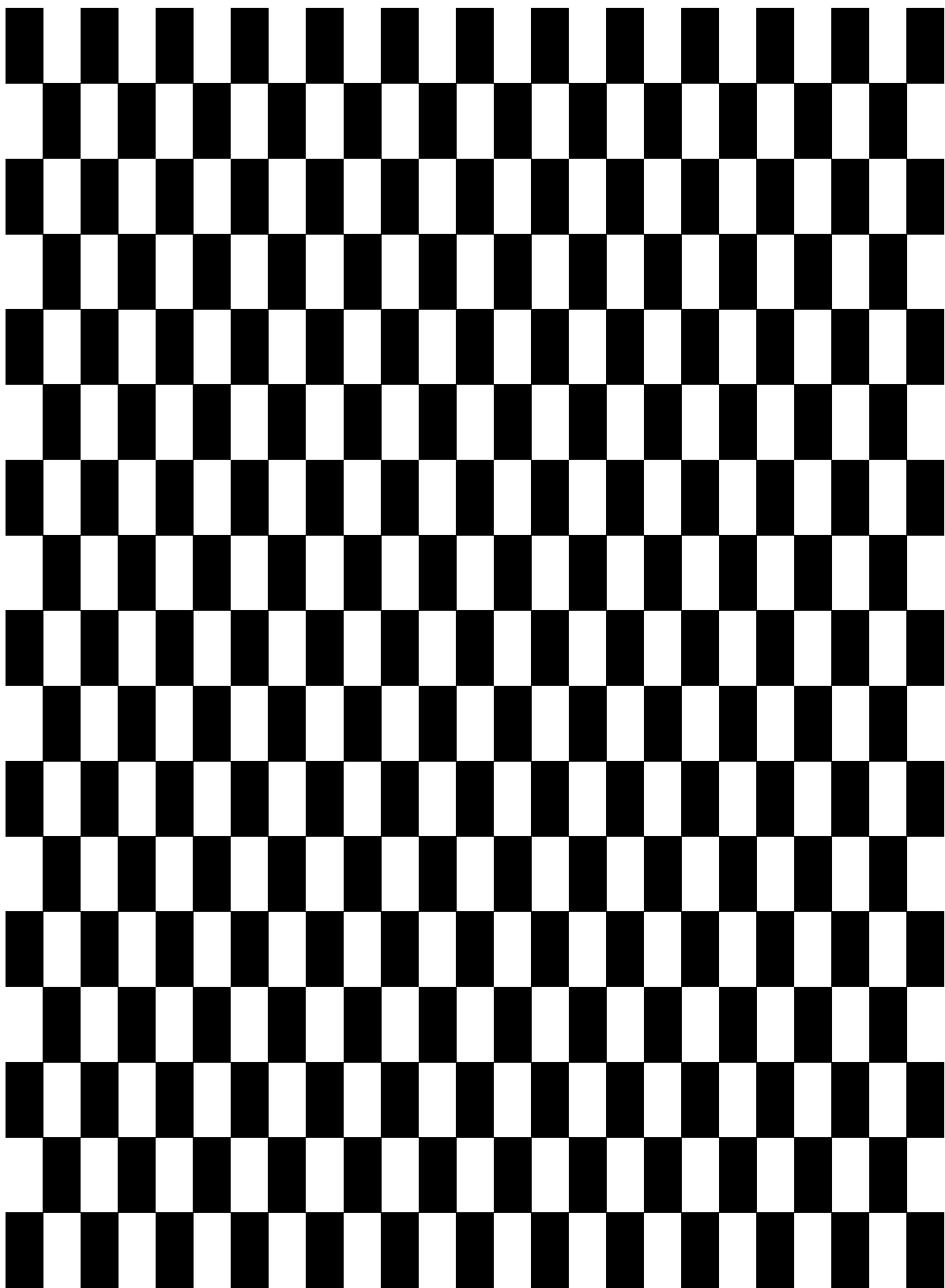


Figure 4-26 Print Pattern Sample

6.2.6 Modem and NCU tests

These tests test modem and NCU transmission and reception. The modem tests check whether signals are sent correctly from the modem by comparing the sound of the signals from the speaker with the sounds from a normal modem. Also, you check on the display whether or not the modem correctly detected received tone signals and DTMF signals.

End this test by pressing the **Stop/Reset** button.

Modem test type	Overview
Frequency test	The modem sends tone signals from the modular jack and the speaker.
G3 signal transmission test	The modem sends G3 signals from the modular jack and the speaker.
V34 signal transmission test	The V.34 modem sends G3 signals from the modular jack and the speaker

a) Frequency test

The frequency test menu is selected by pressing the **2** button from the MODEM NCU test menu. Signals of the frequencies below are sent from the modem using the modular jack and the speaker. The frequency can be changed with the numeric buttons.

Numeric button	Frequency
1	462 Hz
2	1100 Hz
3	1300 Hz
4	1500 Hz
5	1650 Hz
6	1850 Hz
7	2100 Hz



NOTE

The transmission levels for each frequency follow the service data transmission level settings.

b) G3 signal transmission test

The G3 signal transmission test menu is selected by pressing the **4** button from the MODEM NCU test menu. The G3 signals below are sent from the modem using the modular jack and the speaker. The frequency can be changed with the numeric buttons.

Numeric button	Frequency
0	300 bps
1	2400 bps
2	4800 bps
3	7200 bps
4	9600 bps
5	TC7200 bps
6	TC9600 bps
7	12000 bps
8	14400 bps



NOTE

The transmission level for each frequency follows the service data.

c) V.34 G3 signal transmission test

The V.34 G3 signal transmission test menu is selected by pressing the 8 key from the MODEM NCU test menu. The V.34 G3 signals below are sent from the modem using the modular jack and the speaker by pressing the **Start** key.

The Baud rate can be changed with the numeric keys, and the Speed can be changed with the search keys.

Numeric key	Baud rate
0	3429 baud
1	3200 baud
2	3000 baud
3	2800 baud
4	2743 baud (Not used)
5	2400 baud

Search key	Speed
	2400 bps–2.4 kbps
	4800 bps–4.8 kbps
	7200 bps–7.2 kbps
▶	9600 bps–9.6 kbps
	12000 bps–12.0 kbps
	14400 bps–14.4 kbps
	16800 bps–16.8 kbps
	19200 bps–19.2 kbps
	21600 bps–21.6 kbps
	24000 bps–24.0 kbps
◀	26400 bps–26.4 kbps
	28800 bps–28.8 kbps
	31200 bps–31.2 kbps
	33600 bps–33.6 kbps



NOTE

The transmission level for each frequency follows the service data.

6.2.7 Faculty tests

The faculty tests are selected by pressing the **6** button from the test mode menu. These tests test the following faculties of this fax.

Test type	Overview
Sensor tests	Test whether the sensors are operating correctly.
Operation panel test	Tests whether the button switches on the control panel are operating correctly.
Line signal reception test	Tests whether the NCU board signal sensor and frequency counter are operating correctly.

a) Sensor tests

The sensor test is selected by pressing the **3** button from the faculty test menu. In this test, you can check the status of each sensor of this fax in item 1 on the display.

You can also check if sensors that use actuators and microswitches are operating correctly by moving the actuator or microswitch. (See page 4-28 Faulty scanner unit’s sensors.)



NOTE

The sensor tests cannot be used to test all of the sensors. The following sensors cannot be tested with the sensor tests:

Pickup sensor, cover sensor, and ink sensor.

If any of these sensor are faulty, an error message or service error code will appear to indicate the faulty sensor.

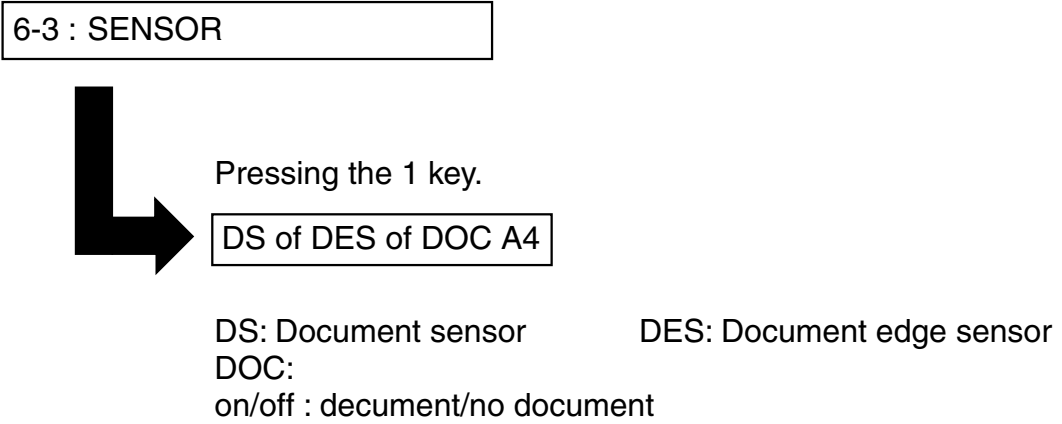


Figure 4-27 Sensor Tests

b) Operation panel tests

The operation panel test is selected by pressing the **7** button from the faculty test menu. In this test, check that the display, LED lamps, and buttons on the control panel are operating correctly.

b-1) Display test

If you press **Start** button in the menu of the operation panel, 20 letters of “H” are displayed in two lines. If you press **Start** button one more time, all the LCD dots are displayed. If you press **Start** button once again, “_” is displayed. Verify that there are no LCD dots which fail to be displayed by performing this operation.

b-2) LED lamp test

The LED lamp test is selected by pressing the **Start** button after the display test.

When the **Start** button is pressed, all the lamps on the control panel light. Check for any LED that does not light during the test.

b-3) Operation button test

The Operation button test is selected by pressing the **Start** button after the LED lamp test.

In this test, you press the button corresponding to the displayed character to put it out. The table giving the correspondence between the characters and the buttons is below.

Character	Operation button	Character	Operation button
1-#	Numeric buttons	C	Copy button
W	ON/OFF button	N	Scan button
M	Resume button	L	Color/B&W button
-	◀button	F	FAX button (MultiPASS F50 only)
t	Menu/▶button	R	Redial/Pause button (MultiPASS F50 only)
S	Set button	D	Coded Dial Button (MultiPASS F50 only)
Z	Enlarge/Reduce button	O	Hook button (MultiPASS F50 only)
P	Paper Select button		
E	Exposure button		
I	Image Quality button		

b-4) One-touch speed dial test (MultiPASS F50 only)

When all the characters displayed have gone out, the system next starts the one-touch speed dialing button test. The letters a-l are displayed on the display, corresponding to one-touch speed dialing buttons 01-12. Each letter displayed on the display goes out when its corresponding one-touch speed dialing button is pressed.

In this test, check for operation buttons whose corresponding character or letter does not go out when the button is pressed. (See page 4-25 The buttons do not work.)

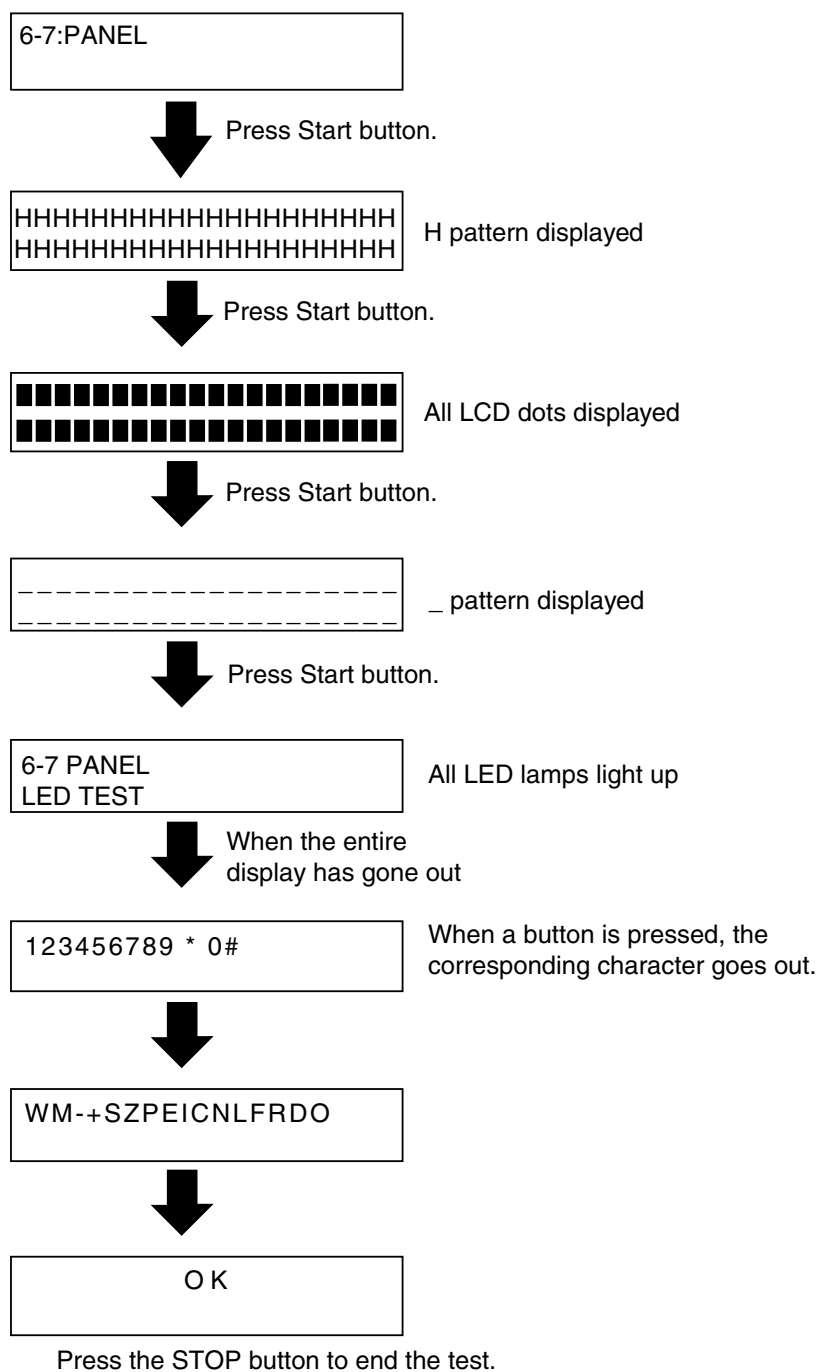


Figure 4-28 Operation Panel

c) Line signal reception test

The line detect test menu is selected by pressing the **9** button from the faculty test menu. This test checks the operation of the NCU signal sensor and frequency counter. In Menu 1, the CI, status can be detected and in Menu 2 the frequency can be detected at changing detection levels. In this way, you can check if the NCU board is correctly detecting signals.

c-1) Test Menu 1

Test Menu 1 is selected by pressing the **1** button from the Line Detect menu. When CI, and CNG are detected from the modular jack, the display changes from OFF to ON and the received frequency is displayed.

c-2) Test Menu 2

Test Menu 2 is selected by pressing the **2** button from the Line Detect menu. When a tonal frequency is detected from the modular jack, the display changes from OFF to ON and the received frequency is displayed. The frequency detection level can be set with the numeric buttons.

Numeric button	Detection level (dBm)
0	-26
1	-30
2	-32
3	-35
4	-38
5	-41
6	-43
7	-45
8	-47
9	-51

c-3) Test Menu 3

Test Menu 3 is selected by pressing the **3** button from the Line Detect menu. When CNG is detected from the modular jack, the display changes from OFF to ON.

c-4) Test Menu 4

This item is not used. Do not select it.

7. SERVICE REPORT

7.1 Report Output Function

7.1.1 User report output functions

The fax can output user reports manually by user operation, or automatically, according to user data settings.

a) Manual output of reports by user operation

Report type	Operations
Activity Report	Press the Menu button, and then select REPORT/LIST using the ◀▶ button. Press the Set button. Using the ◀▶ button, select the type of report to generate, and press the Set button.
Speed dial list	
User data list	
Document memory list	

b) Reports output automatically by user data settings

Each report written below can be automatically output by specifying “**REPORT SETTINGS**” in user data.

Transmission (TX) reports
 Error TX report
 TX report
 TX report with first page
 Reception (RX) reports
 Error RX report
 RX report
 Multi-Transaction (TX/RX) report
 Activity report



NOTE

ROM Version display

The ROM version is printed on the top left hand side of the User's data list. Please refer to this when troubleshooting.

example:

USA XX-XX / X.XX

Printer ROM version

MAIN-ROM-version

c) Reports output automatically

Memory clear report

The fax automatically outputs a memory clear report when the power is turned on after a power cut.

06/17/1999 13:13 FAX 1234567890

Canon Inc.

001

*** MEMORY CLEAR REPORT ***

MEMORY FILES DELETED

TX/RX NO	MODE	CONNECTION TEL/ID	PGS.	SET TIME
0008	B'CAST	[01]Canon UK [02]Canon France [03]Canon USA	1	06/17 13:08
0009	TRANSMIT	[03]Canon USA	2	06/17 13:09
5002	AUTO RX COL	0123456789	1	06/17 13:11

Figure 4-29 Memory Clear List

- TX/RX NO
- : Indicates four digits of the transaction number
- MODE
- : Indicates, TRANSMIT, or AUTO RX or B'CAST (Broadcast) and COL (Color)
- CONNECTION TEL
- : Number sent from the other party or number dialled
- PAGES
- : Number of pages are stored in memory
- SET TIME
- : Time when data is stored in memory

7.1.2 Service report output functions

The fax outputs service data setting status, past communications history reports.

a) List of service reports

The fax outputs the service reports shown below.

Report type	Operations
1. System data list	In the service mode, and select SERVICE REPORTS using the ◀▶ button. Press the Set button; then, select the type of list to generate using the ◀▶ button.
2. System dump list	
3. System data list & System dump list	
Service activity report (with service error code and dump list)	If you set bits 0 and 1 of #1 SSSW SW01 in the service mode, the service error code and dump list are indicated on the activity report (sending/receiving).

a-1) System data list

This list shows service data #1~#5, #7, #9 setting statuses.
The following is a sample list.

07/23/2001 14:07 FAX 1234567890		Canon Inc.	001
***** *** SYSTEM DATA LIST *** *****			
#1 SSSW			
SW01	----	00000000	
SW02	----	00000000	
SW03	----	00000000	
SW04	----	10000000	
SW05	----	00000000	
SW06	----	10010000	
SW07	----	00000000	
SW08	----	00000000	
SW09	----	00000000	
SW10	----	00000000	
SW11	----	00000000	
SW12	----	00000010	
SW13	----	00000000	
SW14	----	00000000	
SW15	----	00000000	
SW16	----	00000011	
SW17	----	00000000	
SW18	----	00000000	
SW19	----	00000000	
SW20	----	10000000	
SW21	----	00000000	
SW22	----	00000000	
SW23	----	00000000	
SW24	----	00000000	
SW25	----	00000000	
SW26	----	00000000	
SW27	----	00000000	
SW28	----	00000000	
SW29	----	00000000	
SW30	----	00000000	
SW31	----	00000000	
SW32	----	00000000	
SW33	----	00000000	
SW34	----	00000000	
SW35	----	00000000	
SW36	----	00000000	
SW37	----	00000000	
SW38	----	00000000	
SW39	----	00000000	
SW40	----	00000000	
SW41	----	00000000	
SW42	----	00000000	
SW43	----	00000000	
SW44	----	00000000	
SW45	----	00000000	
SW46	----	00000000	
SW47	----	00000000	
SW48	----	00000000	
SW49	----	00000000	
SW50	----	00000000	

Figure 4-30 System Data List (1/6)

07/23/2001 14:07 FAX 1234567890		Canon Inc.	002
#2 MENU			
05:	----	OFF	
06:	----	DIAL	
07:	----	10	
08:	----	3429	
09:	----	33.6	
10:	----	25Hz	
#3 NUMERIC Param.			
02:	----	10	
03:	----	15	
04:	----	12	
05:	----	4	
06:	----	4	
09:	----	6	
10:	----	5500	
11:	----	3500	
15:	----	120	
16:	----	4	
17:	----	100	
18:	----	0	
19:	----	200	
20:	----	100	
21:	----	0	
22:	----	200	
23:	----	44	
24:	----	20	
25:	----	60	
26:	----	44	
30:	----	0	
#4 NCU			
1. TONE / PULSE			
1. TONE			
01 :	----	90	
02 :	----	180	
2. PULSE			
		DP(N)	
01 :	----	100	
02 :	----	200	
03 :	----	39	
04 :	----	780	
2. DIAL TONE			
		00000000	
01 :	----	350	
02 :	----	90	
03 :	----	10	
04 :	----	0	
05 :	----	0	
06 :	----	0	
07 :	----	5	
08 :	----	0	
3. 2nd DIAL TONE			
		10000000	
01 :	----	4000	
02 :	----	3	
03 :	----	25	
04 :	----	5	
05 :	----	25	

Figure 4-31 System Data List (2/6)

07/23/2001 14:07 FAX 1234567890		Canon Inc.	003
06 :	----	0	
07 :	----	5	
08 :	----	5	
4. BUSY TONE 0		00000000	
01 :	----	1000	
02 :	----	40	
03 :	----	60	
04 :	----	40	
05 :	----	60	
06 :	----	1	
07 :	----	5	
08 :	----	3	
5. BUSY TONE 1		10000000	
01 :	----	500	
02 :	----	18	
03 :	----	60	
04 :	----	18	
05 :	----	60	
06 :	----	12	
07 :	----	3	
08 :	----	3	
6. REORDER TONE		10000000	
01 :	----	0	
02 :	----	18	
03 :	----	32	
04 :	----	18	
05 :	----	82	
06 :	----	12	
07 :	----	3	
08 :	----	3	
7. MULTI			
01 :	----	8	
02 :	----	10	
03 :	----	300	
04 :	----	0	
8. AUTO RX			
01 :	----	15	
02 :	----	60	
03 :	----	10	
04 :	----	120	
05 :	----	1100	
06 :	----	0	
07 :	----	2	
08 :	----	10	
09 :	----	20	
9. CNG DETECT			
01 :	----	40	
02 :	----	60	
03 :	----	0	
04 :	----	0	
05 :	----	0	
06 :	----	85	
07 :	----	40	
08 :	----	60	
09 :	----	8	
10 :	----	0	

Figure 4-32 System Data List (3/6)

07/23/2001 14:07 FAX 1234567890		Canon Inc.	004
11 :	-----	2	
12 :	-----	70	
10.SPECIAL			
SW01	-----	00001100	
SW02	-----	00000000	
SW03	-----	00000000	
SW04	-----	00000100	
SW05	-----	00000000	
SW06	-----	00000000	
SW07	-----	00001000	
SW08	-----	00000000	
SW09	-----	00000000	
SW10	-----	00000000	
SW11	-----	00000000	
SW12	-----	00000000	
SW13	-----	00000000	
SW14	-----	00000000	
SW15	-----	00000000	
SW16	-----	00110000	
SW17	-----	00000000	
SW18	-----	00000000	
SW19	-----	00000000	
SW20	-----	00000000	
SW21	-----	00000000	
SW22	-----	00000000	
SW23	-----	00000000	
SW24	-----	00000010	
SW25	-----	00000000	
SW26	-----	00000000	
SW27	-----	00000000	
SW28	-----	01000001	
SW29	-----	00000010	
SW30	-----	00000000	
01 :	-----	5	
02 :	-----	30	
03 :	-----	30	
04 :	-----	4	
05 :	-----	150	
06 :	-----	100	
07 :	-----	6	
08 :	-----	0	
09 :	-----	0	
10 :	-----	10	
11 :	-----	2	
12 :	-----	1	
13 :	-----	3	
14 :	-----	60	
15 :	-----	1000	
16 :	-----	8	
17 :	-----	45	
18 :	-----	99	
19 :	-----	0	
20 :	-----	58	
21 :	-----	0	
22 :	-----	0	
23 :	-----	0	
24 :	-----	10	
25 :	-----	25	

Figure 4-33 System Data List (4/6)

07/23/2001 14:08 FAX 1234567890		Canon Inc.	005
26 :	----	2	
27 :	----	2	
28 :	----	0	
29 :	----	0	
30 :	----	6	
31 :	----	0	
32 :	----	0	
33 :	----	0	
34 :	----	0	
35 :	----	0	
36 :	----	0	
37 :	----	0	
38 :	----	0	
39 :	----	0	
40 :	----	0	
41 :	----	0	
42 :	----	37	
43 :	----	0	
44 :	----	0	
45 :	----	0	
46 :	----	0	
47 :	----	10	
48 :	----	50	
49 :	----	0	
50 :	----	0	
11.RKEY			
01 :	----	0	
02 :	----	0	
03 :	----	0	
12.PBX DIAL TONE		00000000	
01 :	----	350	
02 :	----	90	
03 :	----	10	
04 :	----	0	
05 :	----	0	
06 :	----	0	
07 :	----	5	
08 :	----	0	
13.PBX BUSY TONE		00000000	
01 :	----	1000	
02 :	----	40	
03 :	----	60	
04 :	----	40	
05 :	----	60	
06 :	----	1	
07 :	----	5	
08 :	----	3	
#5 TYPE			
TYPE	----	U.S.A.	
#7 PRINTER			
SW01	----	00000000	
SW02	----	00000011	
SW03	----	00000000	
SW04	----	00000000	
SW05	----	00000000	

Figure 4-34 System Data List (5/6)

07/23/2001 14:08 FAX 1234567890		Canon Inc.	006
SW06	----	00000100	
SW07	----	00000000	
SW08	----	00000000	
SW09	----	00000000	
SW10	----	00000000	
SW11	----	00000001	
SW12	----	00000000	
SW13	----	00000000	
SW14	----	00000000	
SW15	----	00000000	
SW16	----	00000000	
SW17	----	00000000	
SW18	----	00000000	
SW19	----	00000000	
SW20	----	01000000	
01 :	----	18	
02 :	----	0	
03 :	----	0	
04 :	----	0	
05 :	----	5	
06 :	----	49	
07 :	----	45	
08 :	----	90	
09 :	----	50	
10 :	----	0	
11 :	----	0	
12 :	----	0	
13 :	----	27	
14 :	----	30	
15 :	----	30	
16 :	----	30	
17 :	----	0	
18 :	----	0	
19 :	----	0	
20 :	----	0	
21 :	----	0	
22 :	----	0	
23 :	----	0	
24 :	----	1	
25 :	----	1	
26 :	----	30	
27 :	----	0	
28 :	----	0	
29 :	----	0	
30 :	----	0	
#9 ROM			
VERSION		USA-03-03	
START DATE			
DATE	----	07/23/2001	

Figure 4-35 System Data List (6/6)

**NOTE**

“START DATE” records the date when the fax performs its first transmission, after shipment from the factory.

a-2) System dump list

This list shows the past communications statuses and error communications history.
The following is a sample list.

07/23/2001 14:08 FAX 1234567890				Canon Inc.				001	
CLEAR DATE		12/24/2012							
TX	=	3							
A4	=	1	B4	=	0	A3	=	0	
RX	=	2							
A4	=	2	B4	=	0	A3	=	0	LTR = 0 LGL = 0
33600	=	3	31200	=	0	28800	=	0	26400 = 0 24000 = 0
21600	=	0	19200	=	0	16800	=	0	14400 = 0 12000 = 0
9600	=	0	7200	=	0	4800	=	0	2400 = 0
14400	=	0	12000	=	0	TC9600	=	0	TC7200 = 0
14400	=	0	12000	=	0				
9600	=	0	7200	=	0	4800	=	0	2400 = 0
STD	=	3	FINE	=	0	SUPER	=	0	ULTRA = 0
MH	=	0	MR	=	0	MMR	=	0	JBIG = 3 JPEG = 0
G3	=	0	ECM	=	3				
PRINT	=	26 / 26			READ	=	12 / 12		
INK ABSORBER CAPACITY									
#000		0	0	0	0	0	2	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
#100		0	0	0	0	0	0	1	0
		0	0	0	0	0	0	0	0
		0							
#200		0	0	0	0	0	0		
#220		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0				
#280		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	
#670		0	0	0	0	0	0		
#750		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0

Figure 4-36 System Dump List (1/2)
4-72

CLEAR DATE : Date on which data was initialized with service data #8 CLEAR, ALL
 RX/TX : Total number of receptions/transmissions
 A4/B4/A3/LTR/LGL : Total number of pages transmitted and received for each document size
 33600 bps~2400 bps : Total number of pages transmitted and received for each modem speed
 STD/FINE/SUPER/ULTRA : Total number of pages transmitted and received for each mode
 MH/MR/MMR/JBIG/JPEG : Total number of pages transmitted and received for each coding method
 G3/ECM : Total number of pages transmitted and received in each mode
 PRINT/READ : Total number of pages printed/scanned

[Display example]

PRINT = 30*/100** READ = 30*/100**

* Indicates the value input with Service Data #8 CLEAR, COUNTER.

** Indicates the value counted since shipment from the factory.

INK ABSORBER CAPACITY : Waste ink absorber's ink absorption amount

[Display example]

Suction = 10%

These indicate the following:

The suction waste ink absorber's ink absorption amount is 10%.

#000~##750

[Display example] : Total number of occurrences for each error code

##280	1	7	3	0	0
	##280	##281	##282		
	errors	errors	errors		

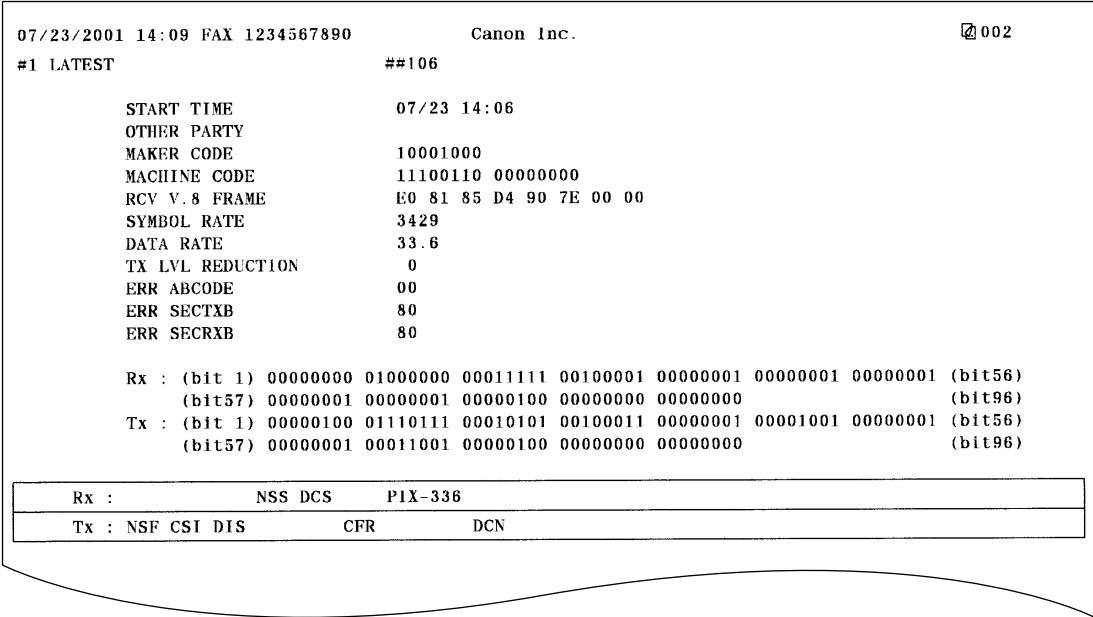


Figure 4-37 System Dump List (2/2)

- ##nnn : Service error code
- START TIME : Communication start date and time (on 24 hour clock)
- OTHER PARTY : Telephone number sent from other party
- MAKER CODE : Maker code
- [1000 1000] Indicates a Canon fax
- lower nibble
- upper nibble
- RCV V.8 FRAME : Received V.8 protocol signal
- SYMBOL RATE : Symbol rate used for the primary channel
- TX LVL REDUCTION : 0 (Fixed)
- ERR ABCODE : Code output by the modem when an error occurred (Not used in the field)
- ERR SECTXB : Transmit status of the modem when an error occurred (Not used in the field)
- ERR SECRXB : Received status of the modem when an error occurred (Not used in the field)
- RX/TX : Received/transmitted protocol signal
- bit 1 to bit 96 of received/transmitted DIS, DCS, or DTS



NOTE

If no service errors have occurred in the past, the above report will not be output.

a-3) Service activity report (sending/receiving)

07/23/2001 14:34 FAX 1234567890		Canon Inc.		001	
***** *** ERROR TX REPORT *** *****					
TX FUNCTION WAS NOT COMPLETED					
TX/RX NO	0008				
CONNECTION TEL					
CONNECTION ID					
ST. TIME	07/23 14:34				
USAGE T	00'36				
PGS. SENT	0				
RESULT	NG ##765				
START TIME	07/23 14:34				
OTHER PARTY					
MAKER CODE	10001000				
MACHINE CODE	11100110 00000000				
RCV V.8 FRAME	E0 81 85 D4 90 7E 00 00				
SYMBOL RATE	3429				
DATA RATE	33.6				
TX LVL REDUCTION	0				

Figure 4-38 Service Error Tx Report

Header	: OK, NG messages
TX/RX NO	: Indicates four digits of the transaction number
CONNECTION TEL (OTHER PARTY)	: Number sent from the other party or number dialled (lower 20 digits)
SUBADDRESS	: Subaddress number sent from the other party
CONNECTION ID	: ID sent from the other party, if the other party is a Canon fax
START TIME	: Communication start date and time (on 24-hour display)
USAGE TIME	: Communication time (in minutes and seconds)
PAGES	: Number of pages for which transmission was complete (For details, <i>see User's manual</i>)
RESULT	: "NG" display with number of pages for which transmission was fault, and service error code
MAKER CODE	: Maker code <div style="margin-left: 40px;"> <div style="display: inline-block; text-align: center; vertical-align: middle;"> <div style="border: 1px solid black; padding: 2px 5px;">1000</div> <div style="border: 1px solid black; padding: 2px 5px;">1000</div> </div> <div style="display: inline-block; vertical-align: middle; margin-left: 10px;"> Indicates a Canon fax lower nibble upper nibble </div> </div>
RCV V.8 FRAME	: Received V.8 protocol signal
SYMBOL RATE	: Symbol rate used for the primary channel
TX LVL REDUCTION	: 0 (Fixed)
ERR ABCODE	: Code output by the modem when an error occurred (Not used in the field)
ERR SECTXB	: Transmit status of the modem when an error occurred (Not used in the field)
ERR SECRXB	: Received status of the modem when an error occurred (Not used in the field)
RX/TX	: Received/transmitted protocol signal bit 1 to bit 96 of received/transmitted DIS, DCS, or DTS



NOTE

The V.8/V.34-related items (RCV V.8 FRAME to ERR SECRXB) are not printed on the Notmal G3 Service Activity Report.

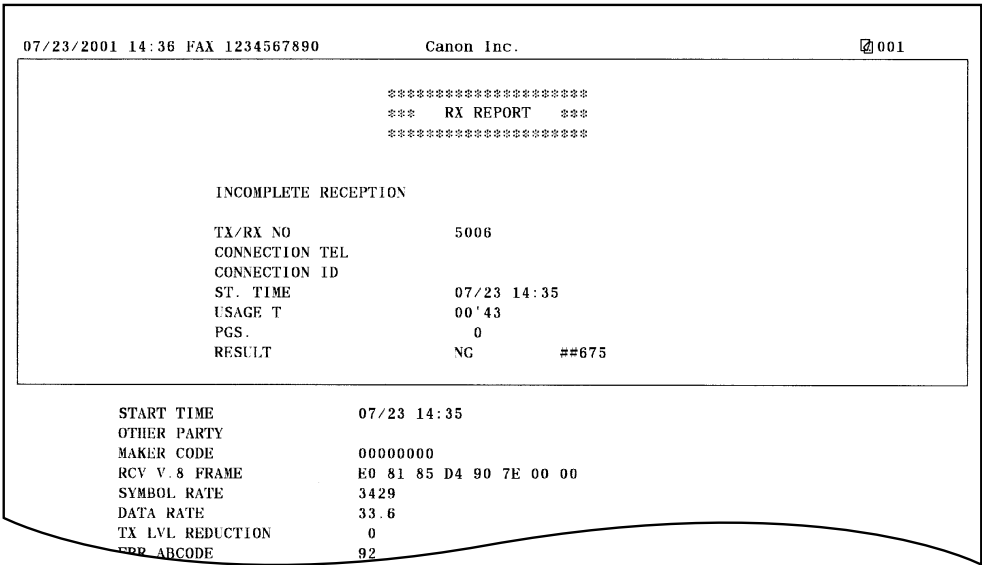


Figure 4-39 Service Error Activity Report (receiving)

Header	: OK, NG messages
TX/RX NO	: Indicates four digits of the transaction number
CONNECTION TEL (OTHER PARTY)	: Number sent from the other party or number dialed (lower 20 digits)
SUBADDRESS	: Subaddress number sent from the other party
CONNECTION ID	: ID sent from the other party, if the other party is a Canon fax
START TIME	: Communication start date time (on 24-hour display)
USAGE TIME	: Communication time (in minutes and seconds)
PAGES	: Number of pages for which transmission was complete (For details, see <i>User's manual</i>)
RESULT	: “NG” display with number of pages for which transmission was fault, and service error code
MAKER CODE	: Maker code [1000 1000] Indicates a Canon fax lower nibble upper nibble
RCV V.8 FRAME	: Received V.8 protocol signal
SYMBOL RATE	: Symbol rate used for the primary channel
DATA RATE	: Transmission speed used for the primary channel
TX LVL REDUCTION	: 0 (Fixed)
ERR ABCODE	: Code output by the modem when an error occurred (Not used in the field)
ERR SECTXB	: Transmit status of the modem when an error occurred (Not used in the field)
ERR SECRXB	: Receive status of the modem when an error occurred (Not used in the field)
RX/TX	: Received/transmitted protocol signal bit 1 to bit 96 of received/transmitted DIS, DCS, or DTS



The V.8/V.34-related items (RCV V.8 FRAME to ERR SECRXB) are not printed on the Normal G3 Service Activity Report.

NOTE

8. WIRING DIAGRAM

8.1 Wiring Diagram

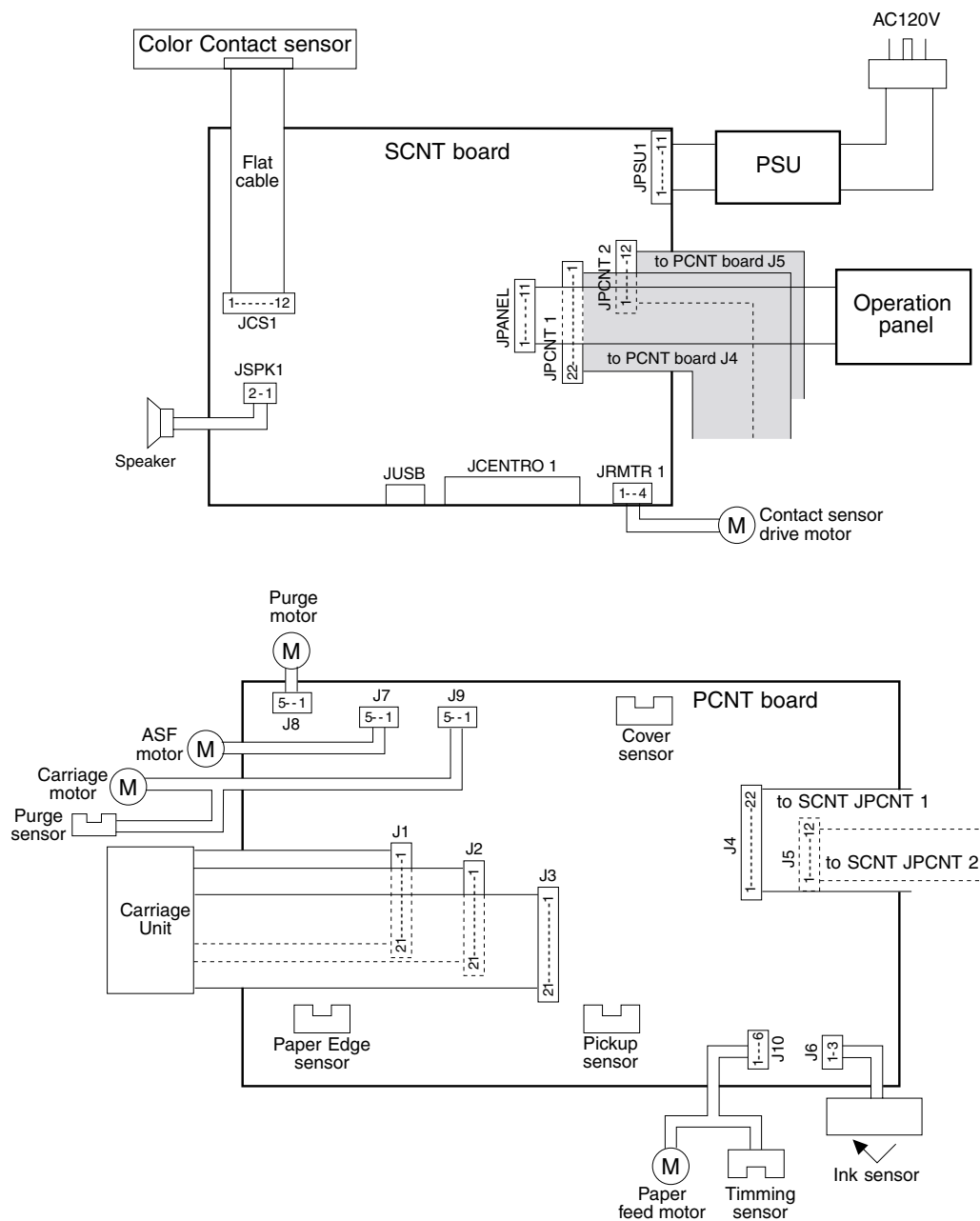


Figure 4-40 MultiPASS F30 Wiring Diagram

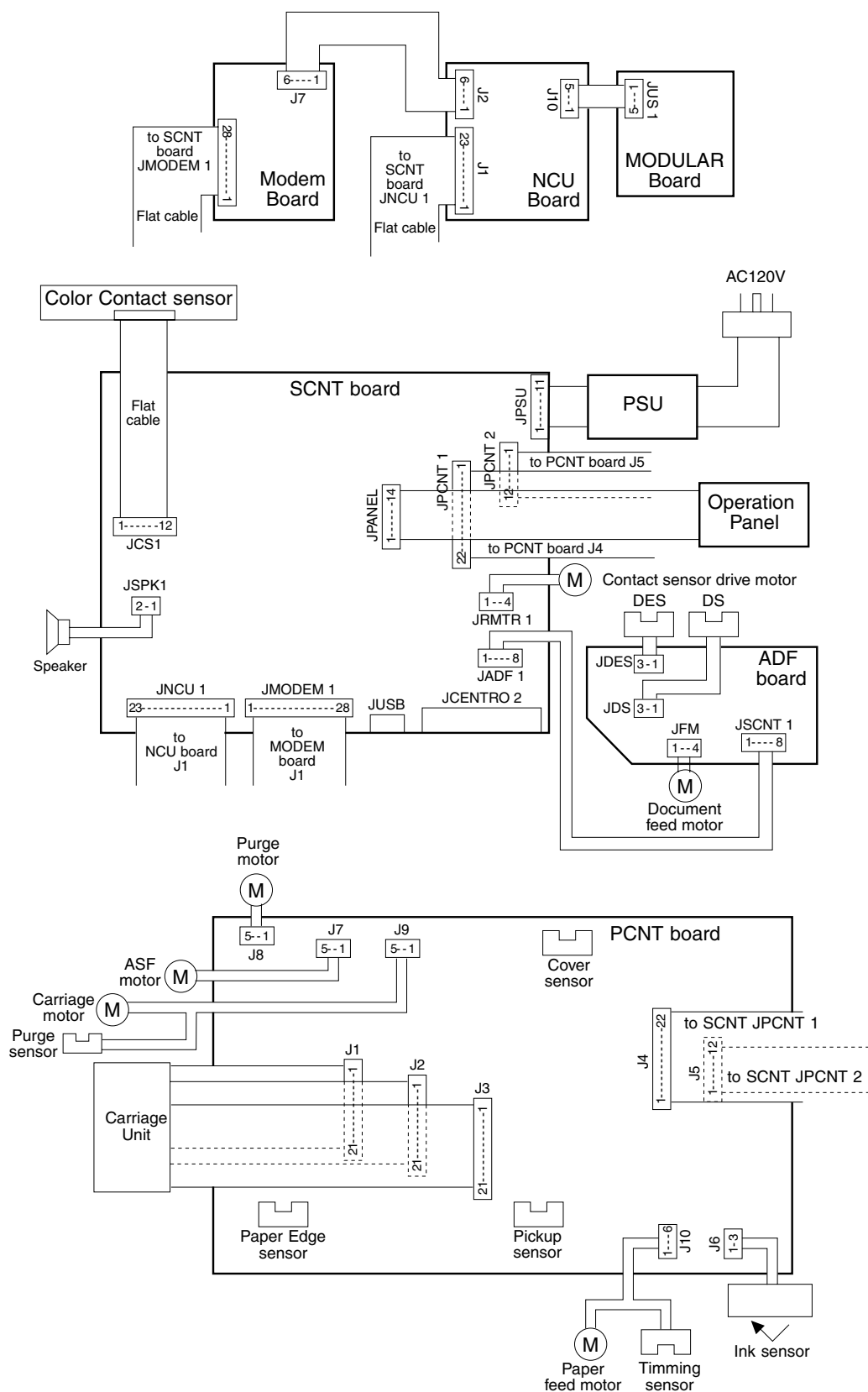


Figure 4-41 MultiPASS F50 Wiring Diagram

Chapter 5

Appendix

1. USER DATA FLOW

1.1 User Data Flow (by Operation Panel)

Press the **Function** button, then press the **Data Registration** button.

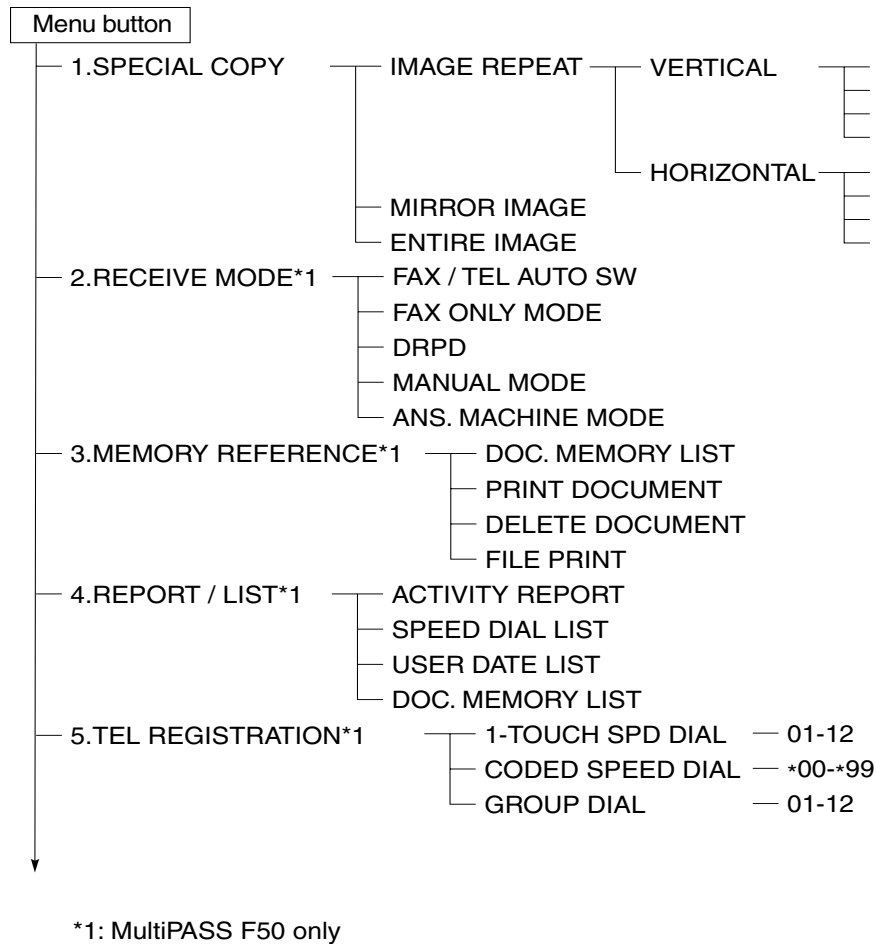
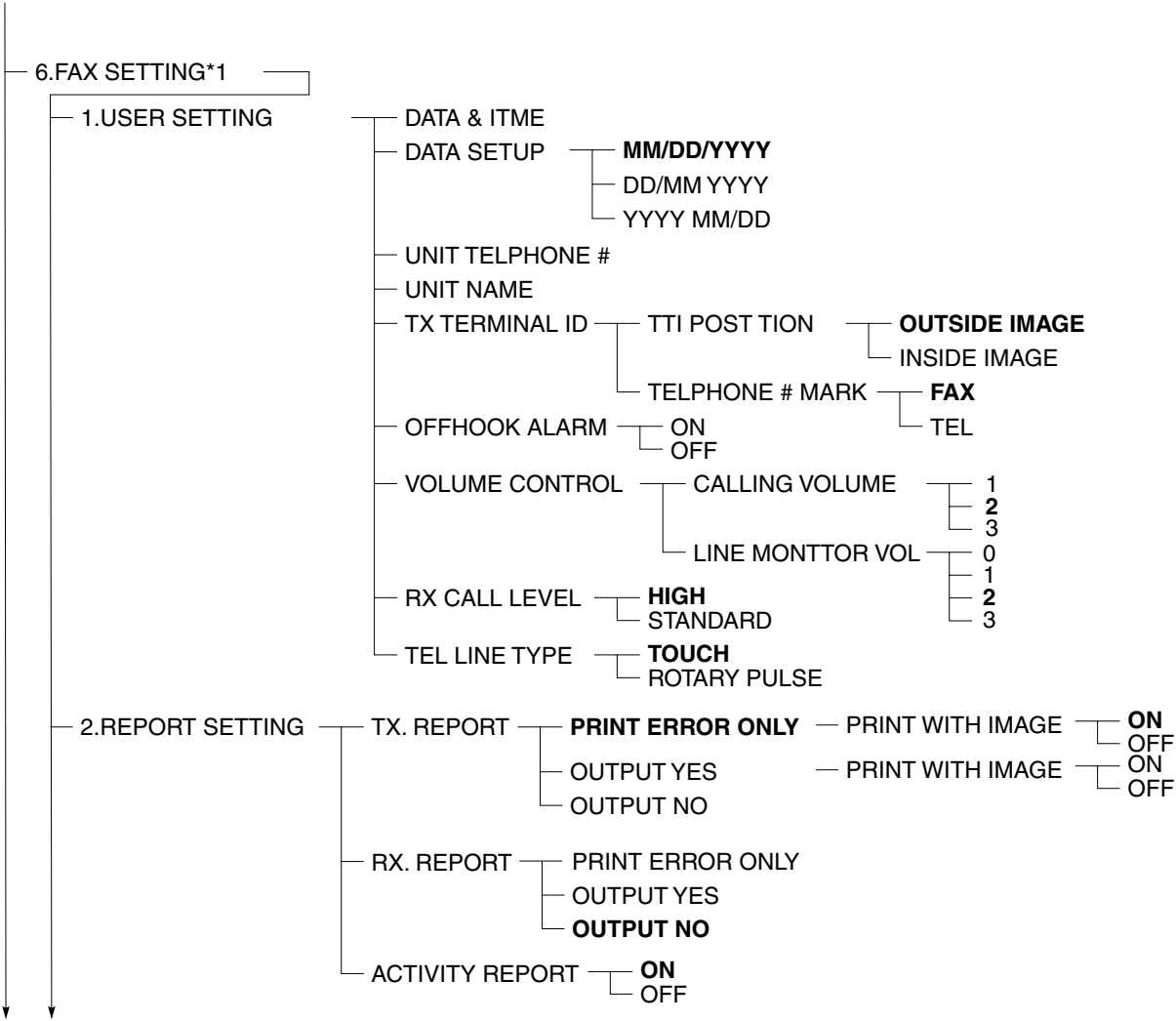


Figure 5-1 User Menu Settings (1/4)



*1: MultiPASS F50 only

Figure 5-2 User Menu Settings (2/4)

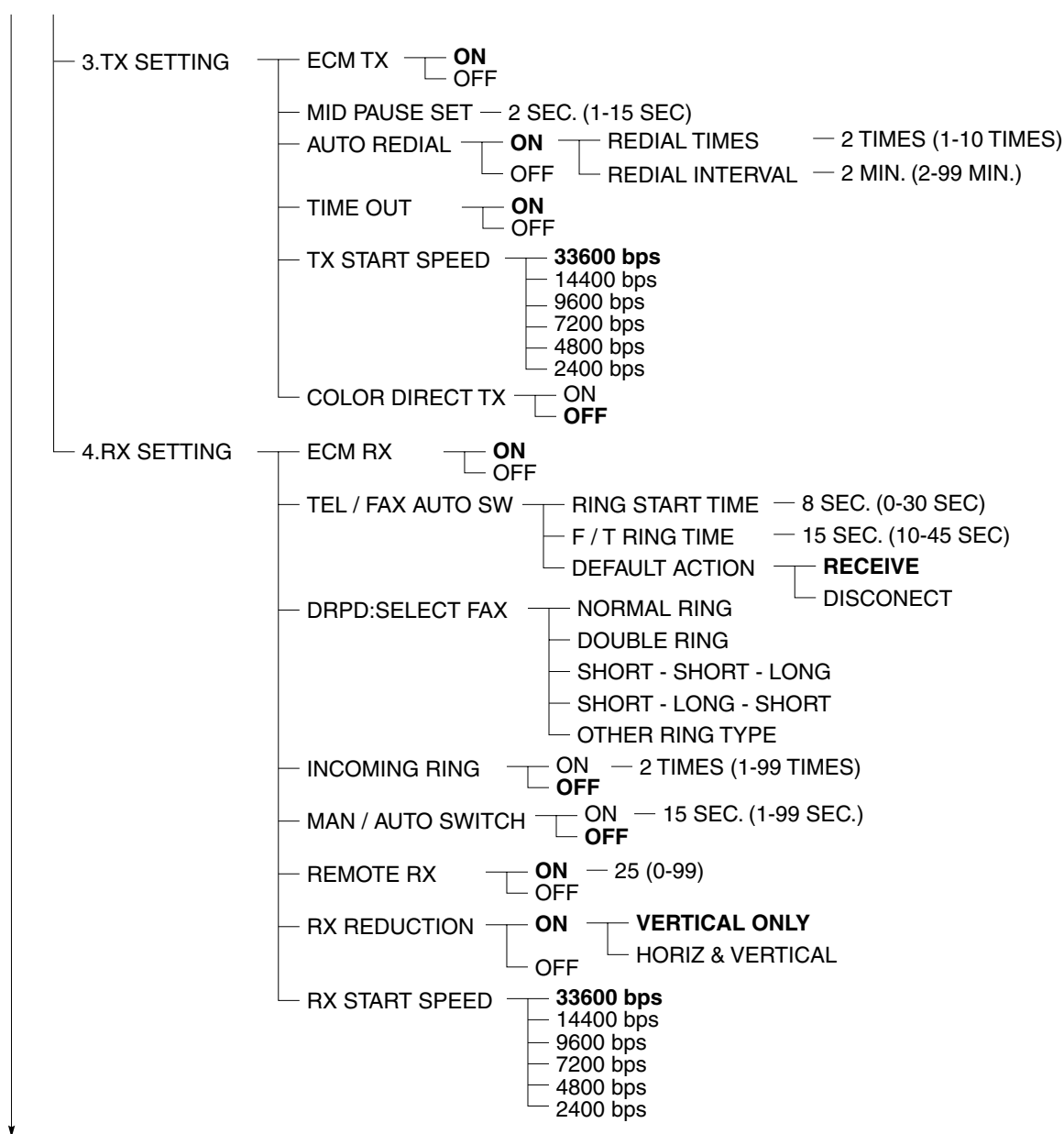


Figure 5-3 User Menu Settings (3/4)

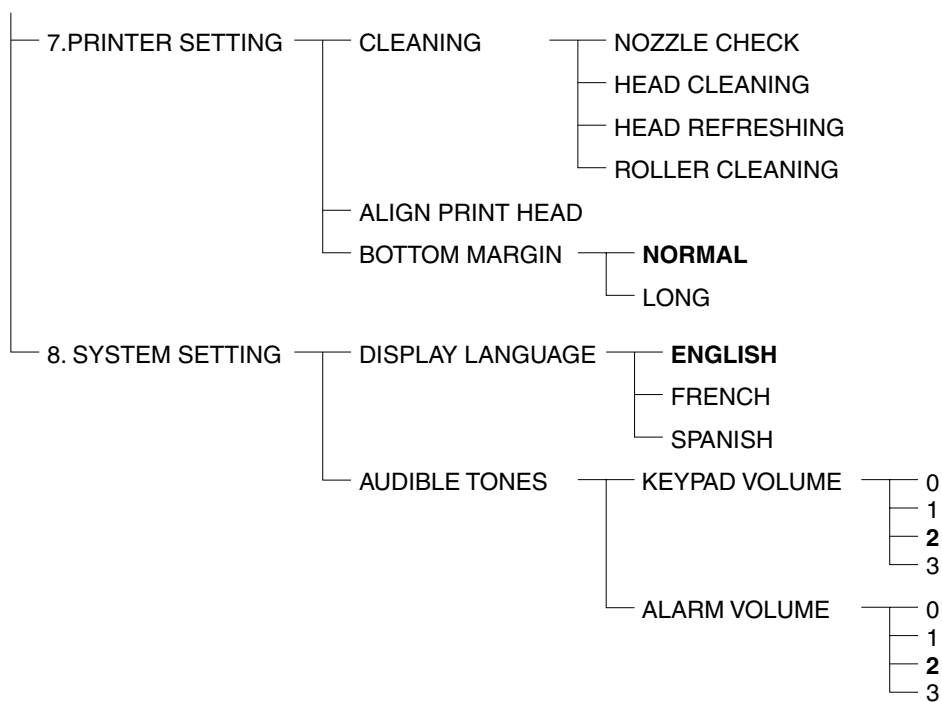


Figure 5-4 User Menu Settings (4/4)

1.2 User Data Flow (by MultiPASS Suite)

Please see *the MultiPASS Suite User's Guide*.

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